PB-232 037

BASELINE EMISSIONS ON 6,000 TO 14,000 POUNDS GROSS VEHICLE WEIGHT TRUCKS

Melvin N. Ingalls

Southwest Research Institute

Prepared for:

Environmental Protection Agency

June 1973

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U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Water Programs
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A group of 50 trucks, of model years 1965 to 1973, 6,000 to 16,000 lbs gross vehicle weight were tested for exhaust and evaporative emissions using a modified light duty procedure. The results from these tests, together with other similar tests initiated by the Environmental Protection Agency, will form the baseline emissions data for this test procedure. The group of trucks which was assembled for these tests was sufficiently varied to contribute to a proper baseline. All trucks completed the test procedure successfully, however, it appears that some adjustment in road load power settings may be required at dynamometer inertia settings above 8,500 lbs.

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Prepared for

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Office of Air and Water Programs
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Emission Control Technology Division
Ann Arbor, Michigan 48105

June 1973

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FOREWORD

This project was initiated by the Procedures Development Branch, Division of Emission Control Technology, Air Pollution Control Office of the Environmental Protection Agency, 2565 Plymouth Road, Ann Arbor, Michigan. The work was accomplished under Contract 68-01-0467. The Environmental Protection Agency Project Officer for the contract was Mr. Preben Ostberg of the Procedures Development Branch.

The engineering and test efforts on which this report is based were accomplished by the Emissions Research Laboratory of Southwest Research Institute, 8500 Culebra Road, San Antonio, Texas. Mr. Karl J. Springer, Manager of Emissions Research Laboratory was the Project Manager for this contract. The principal engineer associated with the project was Mr. Melvin N. Ingalls. The contractual period of performance was from December 19, 1972 to May 19, 1973 and all testing was accomplished within this period. This project was identified within Southwest Research Institute as No. 11-3566-001.

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I. INTRODUCTION

According to the latest statistical information(1)*, trucks comprise about 17 percent of the total vehicles registered and burn approximately 28 percent of gasoline consumed in the United States. Approximately 56 percent of all trucks now classed as heavy duty (that is, above 6,000 lbs gross vehicle weight) are in the 6,000 to 16,000 lbs gross vehicle weight (GVW) class.

This report covers the emission testing of 50 vehicles in the 6,000 to 16,000 lbs GVW class for the purpose of confirming the test procedure used and obtaining baseline emissions data. As it draws heavily on the knowledge and experience gained in previous projects with heavy duty vehicles, a brief review of these projects is presented here.

A. Previous Projects

Southwest Research Institute's Emissions Research Laboratory has been privileged to have conducted a major portion of the research done on heavy duty vehicles beginning in June 1967. This first effort was the acquisition of baseline emissions data from 150 gasoline and LPG fueled spark-ignited, engine-powered trucks and buses using three experimental road-like chassis dynamometer procedures. Exhaust emissions for this project were obtained using a special truck version of the constant volume sampler (CVS) which permitted expression of contaminants on a mass basis. The results of the survey are contained in the SwRI final report(2) which concluded that the three proposed experimental nonconstant speed cycles were not recommended for use in testing emissions from heavy duty vehicles powered by spark-ignited engines. The findings of this study were summarized in AIChE and SAE papers(3, 4) which described the preparations and baseline data results, respectively.

The second major work in this continuing program compared hydrocarbon (HC), carbon monoxide (CO), and nitric oxide (NO) emissions obtained in actual road driving to chassis dynamometer emissions obtained using the Federal nine-mode constant speed cycle (FTP) for six trucks of various sizes and makes. Using a CVS, the current Federal cycle was subjected to a number of modifications to investigate what improvements might be made to make the Federal procedure agree more with road operation(5).

The third in this series of projects, sponsored by the Environmental Protection Agency (EPA) was completed in April 1972(6). The first phase of this three-phase project was a broad emission characterization study of four 1969 trucks under a wide variety of engine speeds, power levels, and both stationary and chassis-operated engines. Emission rates of hydrocarbons, carbon monoxide, and nitric oxide were expressed in mass units of grams per minute, per pound of fuel and per bhp-hr. In addition to the steady-state emission maps, a number of transient accelerations and decelerations were studied using a variety of simulated vehicle inertias. The second phase was a four-vehicle study of the effect of four different road routes on emission rates. The road routes were sufficiently different to be distinct, yet were considered representative of actual truck driving.

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* Superscript numbers in parentheses refer to the List of References at the end of this report.

The study of actual on-the-road exhaust emission rates was continued in a fourth project in which 25 trucks were driven over the San Antonio Road Route while collecting exhaust emission samples with a CVS. Three of these trucks, ranging from 10,000 to 19,500 lbs GVW were also operated, without problems, on a chassis dynamometer using the Federal light duty driving schedule. It is with this background in operation of the CVS on that this project was undertaken.

B. Scope

This report covers the exhaust and evaporative emission testing of 50 vehicles in the 6,000 to 16,000 lbs GVW categories at Southwest Research Institute. This represents only about one-third of the trucks constituting the Environmental Protection Agency's Intermediate Duty baseline fleet. The remaining vehicles were tested by another contractor and in-house by the EPA.

About mid-way through the testing phase of the contract, it became apparent that the road load horsepower table values used for the baseline testing were too high at high gross vehicle weights (in excess of 9,000 lbs). As a temporary solution to the problem, it was decided by the Project Officer that for vehicles with test inertia weights above 8,500 lbs, the road load horsepower corresponding to 8,5000 lbs would be used. It was also decided that, if possible, additional high GVW vehicles should be tested to determine road load horsepower at vehicle weights above 8,000 lbs. Since one of the last of the 50 baseline vehicles was an 11,000 lbs GVW Winnebago Motor Home ideally suited for this testing, road horsepower was determined at several vehicle weights and additional exhaust emission tests run at various inertia weight settings on this vehicle. Since as much road horsepower information as possible was desired at these higher inertia weights and since some time was available after completing the 50 truck baseline tests, an additional truck was obtained for road load horsepower testing. The results of the series of tests on these two vehicles is also covered in this report.

II. OBJECTIVE AND APPROACH

A. Objective

The objective of this project was to determine the exhaust and evaporative emissions on a group of 6,000 to 16,000 lbs GVW vehicles using a modified light duty test procedure. The test results will form the baseline for this procedure. A secondary objective was to confirm that the procedure was workable over the entire range of vehicles considered.

B. Approach

To meet the project objective, it was decided to test 150 trucks falling within the desired GVW range. For its portion of the project, SwRI would test 50 trucks. The procedure used would be the light duty Federal certification procedure, except that the inertia weight and road horsepower settings would not be those listed in the Federal Regulations for light duty vehicles. Inertia weight settings and road load horsepower settings were to be provided by the Procedures Development Branch of the EPA. The fleet composition was also to be determined by the Procedures Development Branch to reflect actual trucks in service over a number of years.

Trucks prior to the 1972 model year were to be tested with timing, idle speed, dwell and carburetor settings as received. Trucks of model year 1972 and 1973 were to be tested as received and if not within factory specifications, set to specifications and retested.

C. Project Co-ordination and Inspections

Project co-ordination began immediately after notification of the acceptance by the EPA of SwRI to perform a portion of the project. A meeting was held at the EPA's Mobile Sources Pollution Control Laboratory, Ann Arbor, Michigan on November 16 and 17, 1972. At this meeting, attended by SwRI and the other contractor involved in the project, the following items were agreed upon:

1. The one hour precondition road run would be replaced by one complete 23-minute driving cycle on the chassis dynamometer.

2. Curb weight would be defined as the unloaded weight of the complete vehicle without owner added accessories or payload.

3. Gross vehicle weight used would be that stamped on the manufacturer's vehicle identification plate.

4. Payload would be defined as GVW minus curb weight.

5. Test weight would be calculated as follows:
Test weight=curb weight+500 lbs (0-2000 lbs payload)
Test weight=curb weight+1000 lbs (2001-4000 lbs payload)
Test weight=curb weight+1500 lbs (greater than 4000 lbs payload)

6. For 1972 and 1973 vehicles to determine if a vehicle was within specifications, the manufacturers tolerances will be used.

7. Model years to be tested will be 1965 to 1973.

8. The contractors would provide the EPA with copies of the original data sheets and computer cards with test results in an agreed upon format.

From this meeting onward throughout the period of the contract, close contact was maintained by telephone between SwRI and EPA representatives working on this project. In addition to the numerous telephone conversations, EPA representatives visited the Emissions Research Laboratory at SwRI on three occasions during the contract period. From January 16 to 19, 1973, Mr. John Shelton of the EPA conducted a formal inspection of the laboratory. On February 26 and 27, 1973, Messrs. Preben Ostberg, Marty Reineman, and Tom Snyder of EPA visited the Emissions Research Laboratory for an informal inspection and project review. On April 5, 1973 Mr. G. E. Douyard made an informal inspection of the laboratory.

III. TEST FACILITY, EQUIPMENT AND PROCEDURE

A. Test Facility

The testing associated with this project was conducted at the SwRI Emissions Research Laboratory. This laboratory, shown on the frontispiece, is equipped for controlled-environment operations with the most modern means of emissions sampling and analysis.

The soak area and chassis dynamometers used in this project are located in one of the laboratory high bay areas. There is ample room in this area for four trucks plus all the equipment and instrumentation required for both CVS exhaust emission tests and canister type evaporative emission tests. The approximate 100 tons of air conditioning and heating servicing this high bay area is capable of maintaining the temperature in the laboratory at the required 76° to 86°F over the entire range of outside temperature. Figure 1 shows portions of the high bay area.

B. Test Equipment and Instrumentation

1. Exhaust Emissions Sampling and Analysis

The exhaust sampling and analysis equipment are built to EPA specifications as shown in the Federal Register, Volume 37, No. 221, Paragraph 85.075-20. For easy reference, Appendix B contains a reprint of the Federal Register sections pertinent to this project.

The constant volume sampler (CVS) used on this project was built by SwRI to EPA specifications. It features a Roots 2510J "Whispair" rotary positive displacement blower. The blower is driven by a 5 hp electric motor using a Browning gearbelt. This arrangement allows the blower to accurately be driven at various speeds by the use of different pulleys. During this project two different blower speeds were used. For the major portion of the testing, a speed of 3880 rpm with a corresponding inlet volume flow of approximately 310 SCFM was used. During the latter portion of the testing, the blower speed was increased to 4850 rpm giving a blower inlet airflow of approximately 360 SCFM. The diluted exhaust gas mixture is maintained at a temperature of 110°F at the blower inlet by a water-to-gas, shell and tube heat exchanger. The dilute exhaust gas and background samples are extracted at the rate of approximately 10 SCFH. The blower inlet pressure and blower pressure rise are read using Dwyer "Magnehelic" pressure gages. The blower inlet temperature is recorded on a strip chart recorder to provide a permanent record.

The analytical instrument train was assembled by SwRI and plumbed to EPA specifications. The analytical instruments in the train are: two

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FIGURE 1. TWO PORTIONS OF SWRI EMISSIONS RESEARCH LABORATORY HIGH BAY AREA

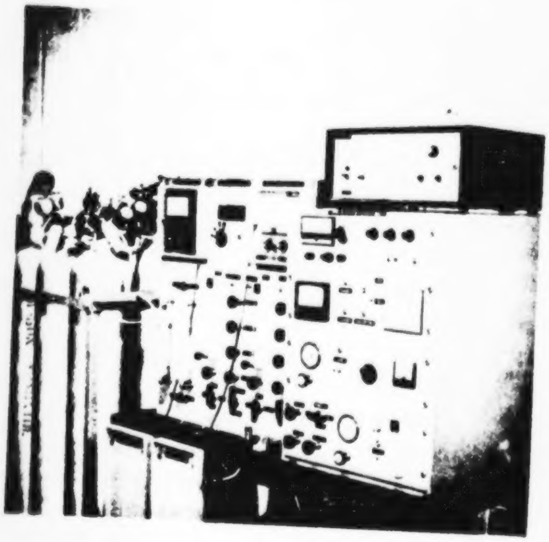

FIGURE 2. ANALYTICAL INSTRUMENTS USED FOR READING BAG SAMPLES

Beckman Model 315A(S) NDIR analyzers, one each for CO and CO_2; a Beckman 400 Flame Ionization analyzer for measurement of hydrocarbons (HC); and a Chemiluminescent analyzer for NO_x, of EPA design, built by SwRI. The output of all of the instruments is fed to a digital volt meter and printer. Figure 2 is a photograph of the analytical instrument system used for the project.

2. Chassis Dynamometers

Two chassis dynamometers were utilized during this project. Both dynamometers were modified Model CT-200, Clayton dynamometers located in the same high bay area. One dynamometer had continuous rollers with an inertia capability of 9,500 lbs. The second dynamometer had split rollers with a capability to handle trucks with a wider wheel track and an inertia capability of 13,500 lbs. The smaller dynamometer, designated dynamometer No. 1, was equipped with a Clayton supplied inertia system. The larger capacity dynamometer, designated dynamometer No. 2, had a SwRI designed and built inertia system. This inertia system was calibrated against the system on dynamometer No. 1 to insure compatable results.

3. Miscellaneous Equipment and Instrumentation

Table 1 lists the other pertinent instrumentation and equipment used in connection with the tests, together with its manufacturer and use.

C. Vehicles Tested

A total of 51 vehicles were tested during this project. Of these, only 50 were subjected to the baseline test program. The remaining vehicle together with one vehicle from the baseline group was used in a road horsepower test series. The vehicles were all obtained from the San Antonio, Texas area from a variety of sources. Table 2 shows the numbers of trucks obtained from each source type. Table 3 is a breakdown of the 50 truck baseline fleet by body style. Table 4 is a matrix presentation showing vehicles tested by manufacturer, model year, and GVW class. Figures 3 to 6 are photographs of some of the baseline fleet. For a description of each individual truck, see Table 7.

D. Fuel

The fuel used for all tests met the requirements of the Federal Regulations. The fuel analysis for the fuel used during this project is given in Table 5.

E. Test Procedure

1. Vehicle Preparation

TABLE 1. MISCELLANEOUS INSTRUMENTATION AND EQUIPMENT

Item Description	Manufacturer and Model	Use
1. Driving cycle charts	Graphic Controls, Recording Chart Division "Federal Driving Schedule," Volume 36, No. 55, 3/71	As driving aid and proof of cycle accuracy
2. Recorder for driving cycle chart	Varian, Model G-1000	Feed driver aid at correct rate and record vehicle speed
3. Fuel pump out cart	SwRI	Pump fuel from test vehicles fuel tank
4. Fuel conditioning and supply cart capable of maintaining fuel at 56°F	SwRI	Provide cooled, metered fuel to test vehicle fuel tank at start of evaporative emission tests
5. Charcoal canisters with 150 grams of activated charcoal per Federal Regulation Specifications	Steffey Metal Products "Carbon Traps for Emission Control Testing"	Adsorb fuel vapors emitted from fuel tank and carburetor
6. Balance scale, dual range (0-200 grams, 0-2000 grams) with digital readout	Ainsworth "Digimetric Jr.," Model 20D	Weighing charcoal canisters
7. Silicone rubber heating pads, .055 inches thick, various widths and lengths	Watlow Electric Manufacturing Company	Heating test vehicle fuel tank
8. Multichannel temperature recorders	Leeds and Northrup	Recording fuel tank temperature, under hood temperature, and ambient temperature

TABLE 1 (Cont'd). MISCELLANEOUS INSTRUMENTATION AND EQUIPMENT

Item Description	Manufacturer and Model	Use
9. Aneroid barometer mounted in laboratory	Airguide Instrument Company	Determining barometric pressure
10. Battery driven psychrometer	Bendix "Psychron," Model 566	Determination of wet and dry bulb temperature
11. Electronic engine tester containing tachometer, dwell meter, timing light, raster oscilloscope and vacuum gage	Sun, Model 1120	Determination of engine condition

TABLE 2. SOURCES OF BASELINE FLEET

Source Type	Number of Trucks
Privately Owned	18
Governmental Organization (Federal, State, and Local)	10
Fleet Owned	18
Rental (Long Term Lease Only)	4

TABLE 3. IDENTIFICATION OF BASELINE FLEET BY BODY STYLE

Body Style	Number of Trucks
Pickup (Including Crew Cab)	26
Van (Panel Pickup)	5
Panel (Multi-stop Van)	3
Cab & Chassis (With Platform or Tool Boxes, etc.)	9
Motor Homes	6
Other (IHC Travelall)	1

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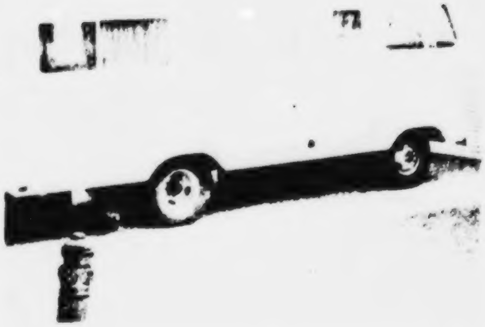
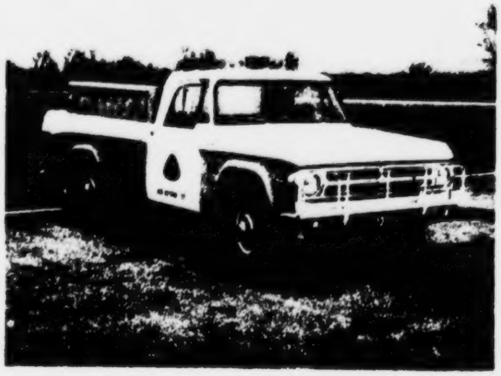
Truck
No. 201
7500 lb GVW
Pickup

Truck
No. 205
11000 lb GVW
Motor Home



Truck
No. 206
6100 lb GVW
Pickup

Truck
No. 207
8000 lb GVW
Panel



Truck
No. 212
7500 lb GVW
Pickup

Truck
No. 213
7000 lb GVW
Panel Pickup

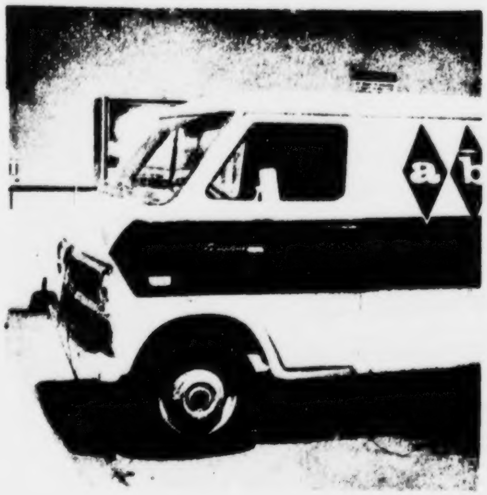


FIGURE 3. TRUCKS FROM BASELINE FLEET

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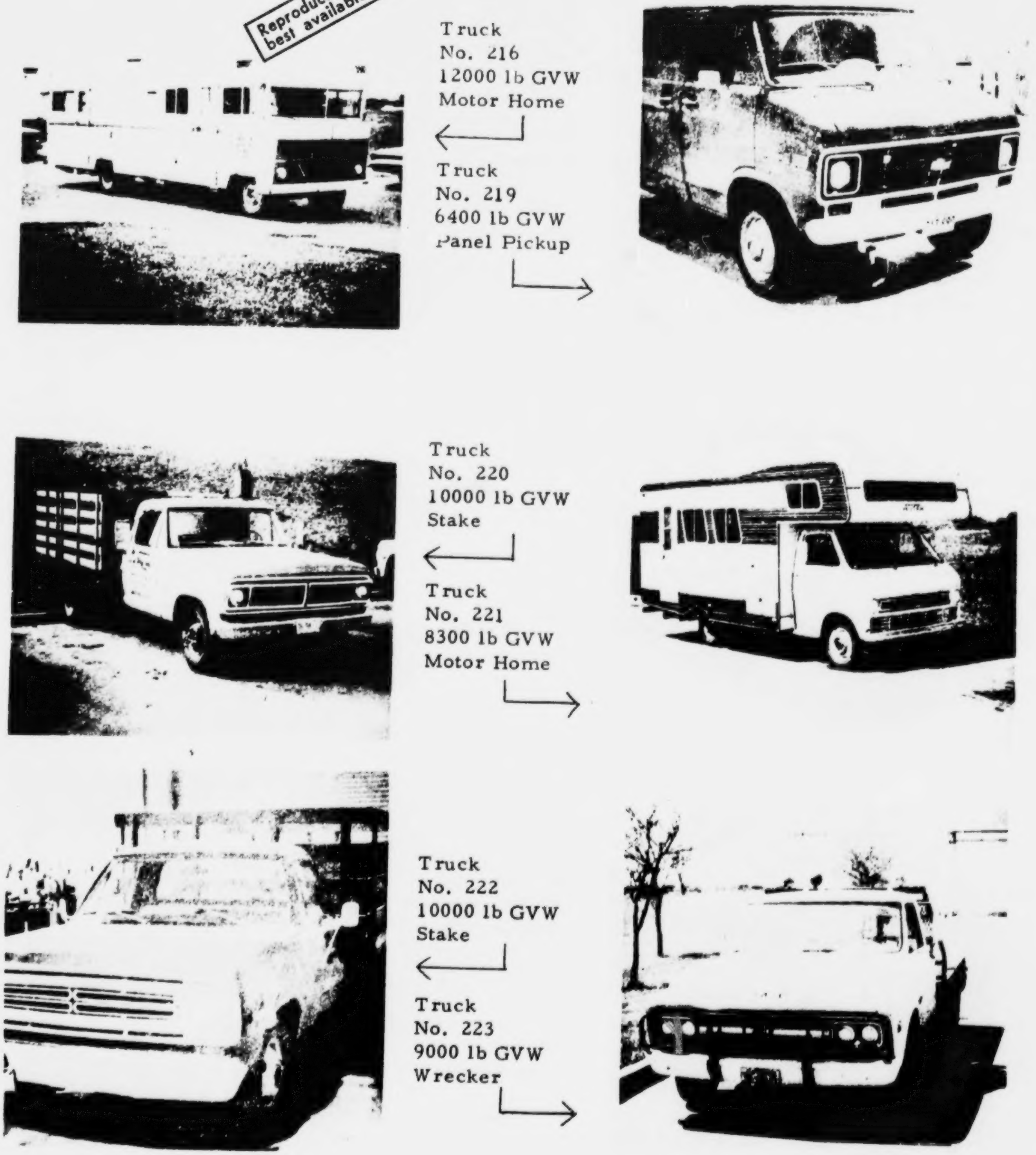

Truck
No. 216
12000 lb GVW
Motor Home

Truck
No. 219
6400 lb GVW
Panel Pickup

Truck
No. 220
10000 lb GVW
Stake

Truck
No. 221
8300 lb GVW
Motor Home

Truck
No. 222
10000 lb GVW
Stake

Truck
No. 223
9000 lb GVW
Wrecker

FIGURE 4. TRUCKS FROM BASELINE FLEET

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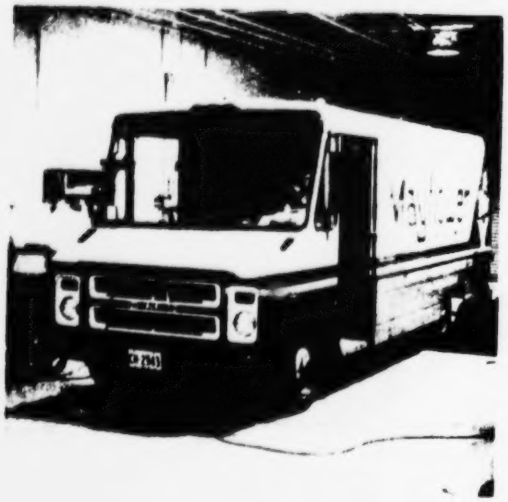
Truck
No. 228
6200 lb GVW
Pickup

Truck
No. 229
7300
Crewcab Pickup

Truck
No. 232
10000 lb GVW
Platform

Truck
No. 233
7500 lb GVW
Pickup



Truck
No. 235
7500 lb GVW
Panel

Truck
No. 237
6100 lb GVW
Pickup

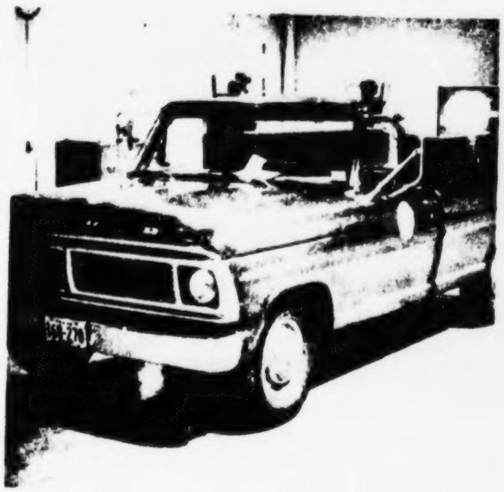


FIGURE 5. TRUCKS FROM BASELINE FLEET

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Truck
No. 238
8300 lb GVW
Panel Pickup

Truck
No. 240
10000 lb GVW
Cab & Chassis

Truck
No. 242
7500 lb GVW
Pickup

Truck
No. 243
13000 lb GVW
Motor Home

Truck
No. 244
7500 lb GVW
Cab & Chassis

Truck
No. 245
11000 lb GVW
Motor Home

FIGURE 6. TRUCKS FROM BASELINE FLEET

TABLE 4. VEHICLES TESTED BY MAKE AND MODEL YEAR (MATRIX FORMAT)

Make	GVW	73	72	71	70	69	68	67	66	65	Total
Chev	6-10	2	2	2	2	1	2	2	1		14
	10-14										
Dodge	6-10		1	1	1						3
	10-14	2	2			1					5
Ford	6-10	3	4	2	4		1	2	1	1	18
	10-14										
	14-16	1									1
GMC	6-10		2		1						3
	10-14										
IHC	6-10	1	2	1				1	1		6
	10-14										
	14-16										
Misc.	6-10										
	10-14										
Subtotal	6-10	6	11	6	8	1	3	5	3	1	44
	10-14	2	2			1					5
	14-16	1									1
										Total	50

TABLE 5. INSPECTION OF LEADED PREMIUM MOTOR GASOLINE USED

Gravity, deg API (D287)	56.7
Distillation Range (D 86)	
Initial Boiling Point, °F	85
5% Point, °F	114
10% Point, °F	131
20% Point, °F	162
30% Point, °F	186
40% Point, °F	206
50% Point, °F	220
60% Point, °F	236
70% Point, °F	254
80% Point, °F	278
90% Point, °F	310
95% Point, °F	327
End Point	352
% Recovery	98.0
% Residue	1.0
% Loss	1.0
Octane No., Research (D1656)	103.5
Total Sulfur, % wt (D1266)	0.009
Reid Vapor Pressure, psi (D323)	8.8
Hydrocarbon Composition (D1319)	
Olefins, %	1.8
Aromatics, %	32.3
Saturates, %	66.9
Lead (Organic) g/gal (D526)	3.271
Phosphorus, Theory	0.0
Oxidation Stability (D525)	1000+
Existent Gum, mg (D381)	1.1

Each truck obtained for testing was weighed at a certified public scale prior to being brought into the laboratory. This weight, less the weight of any owner added accessories, was used as the unload or curb weight. Each truck was thoroughly inspected upon its arrival at the laboratory. The exhaust system was checked for leaks and any leaks found were fixed. Engine performance, including timing, idle speed, and dwell were checked and recorded. The engine was checked "by ear and eye" for proper engine operation. Any truck with an obvious engine mechanical or electric defect was rejected from the test program. All pertinent facts about the engine and drive train were recorded on the data sheet. The preparations as specified in the Federal Regulations were then begun.

2. Baseline Evaporative Emission Tests

The 1975 light duty evaporative emission test procedure (CFR Title 40, Chapter 1, Section 85.075-11, -12, -13) was strictly adhered to for this phase of the baseline testing, except that the one hour preconditioning drive called for in Section 85.075-12 was omitted as agreed upon with the Project Officer. See Appendix B for the detailed procedure.

3. Baseline Exhaust Emission Tests

The exhaust emission tests used the 1975 light duty test procedure (CFR, Title 40, Chapter 1, Section 85.075-14, -19, -24) as specified in the Federal Regulations. The one exception to this procedure was that the inertia weight and road load power table in Section 85.075-15 was not used. In its place the inertia weight and road load power shown in Table 6 of this report were used. See Appendix B for the detailed procedure.

All trucks of model year 1971 or earlier were tested twice in an as-received condition. Trucks of model years 1972 and 1973 were also tested twice as-received and if not within factory specification, set to specification and retested twice more.

4. Road Horsepower Determination Tests

On two vehicles, the road load power was determined by actual road tests at several vehicle weights. The vehicles were first road tested empty. The vehicle weight was then increased in several increments by loading it with sand bags and/or barrels of water. The road load power was determined for each vehicle weight using a procedure similar to that in the Federal Regulations (CFR, Title 40, Chapter 1, Section 85.075-15 (e)(2)). See Appendix B for details of the procedure. In order to improve the accuracy of the procedure, no attempt was made to duplicate the average road vacuum on the dynamometer to determine road load power. Rather, the road load power was determined at half inch vacuum intervals over the vacuum range desired. Road load as a function of vehicle weight was then determined by cross-plotting the vehicle weight versus vacuum and vacuum versus road load curves.

TABLE 6. INERTIA WEIGHT AND ROAD LOAD POWER AS A FUNCTION OF LOADED VEHICLE WEIGHT

Vehicle Test Weight (Pounds)	Equivalent Inertia Weight (Pounds)	Road Load Power at 50 mph (Hp)
4251 to 4750	4500	13.1
4751 to 5250	5000	17.9
5251 to 5750	5500	22.7
5751 to 6250	6000	27.5
6251 to 6750	6500	32.3
6751 to 7250	7000	37.1
7251 to 7750	7500	41.9
7751 to 8250	8000	46.7
8251 to 8750	8500	51.5
8751 to 9250	9000	56.3
9251 to 9750	9500	61.1
9751 to 10250	10000	65.9

Note: Vehicle Test Weight is calculated as follows:

1) Gross Vehicle Weight - unloaded weight = payload

2)

If payload is	Test Load is
0-2000 lbs	500 lbs
2001-4000 lbs	1000 lbs
greater than 4000 lbs	1500 lbs

3) Vehicle Test Weight = Unloaded Weight + Test Load

IV. TEST RESULTS

A. Difficulties Encountered in Baseline Tests

In general, none of the 50 trucks tested had any difficulty completing the light duty driving cycle. All vehicles were able to follow the LA-4 driving cycle within the limits specified in the current light duty procedure. While some vehicles were unable to follow the first high speed acceleration, this problem is recognized in the current light duty procedure which calls for a WOT acceleration until the drivers aid line is intersected in the event that a vehicle cannot follow the acceleration schedule. This was the technique used during this project whenever a vehicle could not maintain the acceleration schedule. The canisters used in the evaporative emission testing did require a great deal of care and technique to achieve good results. As received from the manufacturer, with about a month of shelve time at SwRI, all canisters contained more moisture than was present in the laboratory during the test. This would result in negative evaporative emissions. A technique was developed to obtain completely dry canisters. The canisters were first dried in a laboratory oven for at least one half hour then stored in a desicant chamber equipped with a fan to constantly circulate the air within the chamber. It was also discovered that under certain humidity conditions when testing vehicles with large engines and high inertia weight, that the 310 SCFM blower capacity setting on the CVS was insufficient to prevent moisture formation in the bags. This was easily remedied by increasing the blower capacity to 360 SCFM. No other equipment or instrumentation problems were encountered.

The other difficulties concerned vehicles tested at high inertia weights (9,000 lbs and above). As mentioned earlier, it appeared that the horsepowers listed in Table 6 were excessive for these vehicles. This was discovered on truck No. 216, a 1969 Winnebago with a gross weight of 12,000 lbs and an inertia weight 11,200 lbs. This vehicle could not develop the road load power listed in the table at 50 mph.

One other oddity should be pointed out. On some trucks there was in effect, more than one GVW listed on the name plate. A rating called "GVWR" was stated and then a figure called "Maximum Capacity" which was higher than the GVWR was stated. The actual warranted gross vehicle weight could be anywhere between the two figures, depending on the optional equipment on the vehicle and the tire size. For example, truck No. 223 had GVWR of 7,000 lbs and a maximum capacity of 14,000 lbs. With the options it had installed, it was actually warranted to 9,000 lbs.

B. Baseline Emission Test Results

Table 7 presents the average exhaust and evaporative emission test results of the two as-received tests for each of the 50 trucks tested. Table

TABLE 7. SUMMARY OF BASELINE DATA, INTERMEDIATE SERVICE TRUCKS

Truck No.	Year	Make	Model	Body Type	GVW (lb)	Test Inertia (lb)	Engine CID	Average Emissions*, Grams/mile HC	CO	CO_2	NO_x
200	1970	Ford	250 Custom	Pickup	7500	5000	240	9.69	139.06	502.33	5.93
201	1969	Chev	C/20	Pickup	7500	5500	292	6.18	68.39	508.11	4.81
202	1966	Chev	C/20	Pickup	7500	5500	327	39.07	122.61	648.45	4.88
203	1968	Chev	C/20	Pickup	7500	5500	327	19.70	236.05	532.02	2.75
204	1971	Chev	Cheyenne 20	Pickup	7500	5000	350	3.48	24.20	717.08	6.82
205	1973	Champ/Dodge		Motor Home	11000	8500	318	8.97	126.39	1008.05	12.88
206	1971	IHC	1210	Pickup	6100	5000	345	6.02	64.91	617.20	4.13
207	1966	IHC	Metro-Van 1200	Panel	8000	7000	266	18.50	170.41	702.84	5.56
208	1972	IHC	1210	Pickup	7500	5500	304	4.72	41.37	677.79	8.47
209	1973	Ford	Econoline 300	Panel Pickup	7000	5500	302	5.82	38.40	629.83	4.73
210	1970	Chev	C/30	Pickup	8000	6500	292	7.11	76.53	655.10	7.21
211	1970	Chev	C/20	Pickup	6200	6500**	250	6.35	91.58	659.79	8.40
212	1970	Dodge	200	Pickup	7500	5500	318	5.59	37.40	604.05	5.29
213	1972	Ford	Econoline 300	Panel Pickup	7000	5500	302	4.24	68.51	774.11	4.13
214	1972	Ford	Econoline 300	Panel Pickup	7000	5000	302	5.84	40.75	628.82	3.53

*As received tests.

**Curb weight on this vehicle was 5990 lbs

TABLE 7 (Cont'd). SUMMARY OF BASELINE DATA, INTERMEDIATE SERVICE TRUCKS

Truck No.	Year	Make	Model	Body Type	GVW (lb)	Test Inertia (lb)	Engine CID	Average Emissions*, Grams/mile			
								HC	CO	CO_2	NO_x
215	1970	GMC	2500	Pickup	6200	5000	292	5.86	53.20	593.33	7.37
216	1969	Winne/Dodge	D27	Motor Home	12000	11200	318	6.02	88.72	757.98	6.34
217	1973	Chev	Cheyenne 20	Pickup	6400	5500	454	5.13	70.52	860.91	4.26
218	1972	Chev	C/20	Pickup	6200	5000	350	5.34	40.52	634.38	4.97
219	1973	Chev	C/30	Panel Pickup	6400	5500	350	5.23	45.10	820.52	4.04
220	1970	Ford	F350	Stake	10000	7500	300	4.01	72.78	855.51	11.45
221	1972	Ford	Econoline 300	Motor Home	8300	7500	302	5.55	72.23	818.19	7.26
222	1972	Dodge	Custom 300	Stake	10000	7500	318	8.24	77.66	846.14	6.77
223	1972	GMC	Custom 3500	Wrecker	9000	7500	350	9.95	82.11	523.44	7.03
224	1970	Ford	Custom 250	Pickup	6100	5500	360	9.90	126.58	855.21	4.00
225	1967	Ford	Custom 250	Pickup	6100	6000	240	10.23	146.27	707.96	2.66
226	1967	Ford	Custom 250	Pickup	6100	6000	240	13.42	145.05	719.13	2.30
227	1972	IHC	1210	Travelall	7500	6500	345	5.22	67.33	613.69	5.98
228	1972	Chev	Custom 220	Pickup	6200	5500	350	3.19	56.82	527.89	7.46
229	1967	IHC	1200	Crewcab Pickup	7300	6000	241	13.68	128.98	844.30	3.50

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*As-received tests

TABLE 7 (Cont'd). SUMMARY OF BASELINE DATA, INTERMEDIATE SERVICE TRUCKS

Truck No.	Year	Make	Model	Body Type	GVW (lb)	Test Inertia (lb)	Engine CID	Average Emissions*, Grams/mile			
								HC	CO	CO_2	NO_x
230	1967	Chev	C/20	Pickup	7500	6500	250	12.16	118.45	611.02	6.00
231	1965	Ford	350	Cab&Chassis	10000	8200	240	20.95	182.82	630.76	5.27
232	1971	Ford	350 Custom	Platform	10000	8200	360	12.85	116.28	749.96	6.93
233	1968	Chev	C/20	Pickup	7500	5000	307	11.00	135.10	482.41	1.22
234	1968	Ford	250	Pickup	7500	5500	240	7.56	78.97	477.71	5.67
235	1972	GMC	3500	Panel	7500	7500	292	5.35	79.61	788.42	7.22
236	1966	Ford	250	Platform	7500	6000	240	10.97	140.10	519.29	1.78
237	1969	Ford	250	Pickup	6100	5000	360	8.04	103.50	582.09	2.81
238	1973	Ford	Econoline 300	Panel Pickup	8300	5500	302	6.21	47.22	566.46	5.69
239	1971	Chev	Custom 20	Pickup	6200	5000	350	5.63	50.27	656.20	5.01
240	1973	IHC	1310	Cab&Chassis	10000	7500	304	10.88	131.80	859.84	3.17
241	1972	Ford	Custom F250	Cab&Chassis	6900	6000	300	6.30	112.03	737.09	8.12
242	1971	Dodge	Camper Special	Pickup	7500	5500	318	8.19	134.02	764.30	5.28
243	1972	Dodge	D-22 Chieftain	Motor Home	13000	8500	413	13.96	139.45	1131.14	14.92
244	1967	Chev.	C-20	Cab&Chassis	7500	6000	250	7.94	78.89	696.65	7.01

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* As-received tests.

TABLE 7 (Cont'd). SUMMARY OF BASELINE DATA, INTERMEDIATE SERVICE TRUCKS

Truck No.	Year	Make	Model	Body Type	GVW (lb)	Test Inertia (lb)	Engine CID	Average Emissions*, Grams/mile			
								HC	CO	CO_2	NO_x
245	1972	Dodge	Champion M-30	Motor Home	11000	8500	318	8.23	141.49	996.29	11.96
246	1973	Dodge	Brave M-30	Motor Home	11000	7900	318	7.52	73.86	941.82	14.72
247	1971	Ford	F 250	Pickup	6100	5500	360	10.33	91.14	723.21	4.70
248	1973	Ford	Custom F 250	Pickup	7500	5500	360	3.70	29.10	781.23	5.94
249	1973	Ford	Kurbmaster	Panel	15000	7500	300	5.21	55.28	976.91	6.92
							AVERAGE	8.90	93.20	710.34	6.11

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* As-received tests.

TABLE 8. STATISTICAL SUMMARY OF RESULTS OF AS RECEIVED TESTS FOR 50 TRUCKS

Item	Units	Average	Maximum	Minimum	Standard Deviation
HC phase 1	grams	44.97	163.47	15.61	25.89
HC phase 2	grams	33.61	144.62	10.74	25.27
HC phase 3	grams	27.02	137.07	10.43	19.67
CO phase 1	grams	432.61	949.29	142.49	196.47
CO phase 2	grams	350.30	1033.64	37.94	200.61
CO phase 3	grams	283.93	651.62	27.53	146.28
CO_2 phase 1	grams	2776.53	4724.59	1870.45	625.17
CO_2 phase 2	grams	2734.97	4191.53	1766.88	561.76
CO_2 phase 3	grams	2454.33	3965.65	1532.50	560.00
NO_x phase 1	grams	23.77	58.07	6.55	10.53
NO_x phase 2	grams	20.80	55.44	3.50	11.81
NO_x phase 3	grams	25.89	62.00	4.99	11.61
HC	grams/mile	8.90	39.07	3.19	5.94
CO	grams/mile	93.20	236.05	24.20	44.97
CO_2	grams/mile	710.34	1131.14	477.71	149.69
NO_x	grams/mile	6.11	14.92	1.22	2.97
Evap. Emissions	grams	0.75	2.87	0.06	0.64

8 is a statistical summary of the average as-received test results showing average value, maximum value, minimum value, and standard deviation for all emissions from each phase of the test as well as the overall test results in grams per mile. The same quantities are shown for the evaporative test results.

A summary of the 1972 and 1973 vehicle test results from tests with the vehicle engine within factory specifications is shown in Table 9 for the 22 trucks of model year 1972 or 1973 tested under this project. Twenty-three percent (5 trucks) of the 22 trucks, 1972 and 1973 model year, were received out-of-specification and required returning and retesting after the two as-received tests. Table 10 is the statistical summary of the in-specification test results of the 1972 and 1973 trucks tested. Appendix A contains the individual test results for each truck. It should be noted that the mass values for NO_x in all tables in this report and in Appendix A have been corrected for humidity as specified in the 1975 light duty procedure.

C. Road Load Power Test Results

The results of the road and chassis dynamometer tests of the two trucks (No. 246 and 250) tested at various inertia and road load horsepower settings are shown in Table 11. The relationship between vehicle weight and road load power is shown in Table 12. This relationship was obtained by cross-plotting the road test and dynamometer test results shown in Table 11. For convenience, this relationship between vehicle weight and road load power is shown in graphical form in Figure 7 for both trucks tested. The exhaust emissions at several different inertia weights settings and corresponding road horsepower values are shown in Table 13 for both trucks.

TABLE 9. SUMMARY OF IN-SPECIFICATION TESTS, 1972 AND 1973 VEHICLES

Truck No.	Year	Make	Model	Body Type	GVW (lb)	Test Inertia (lb)	Engine CID	Average Emissions, Grams/mile HC	CO	CO_2	NO_x
205	1973	Champ/Dodge		Motor Home	11000	8500	318	8.97	126.39	1008.05	12.88
208*	1972	IHC	1210	Pickup	7500	5500	304	4.35	59.76	734.00	5.14
209*	1973	Ford	Econoline 300	Panel Pickup	7000	5500	302	5.30	31.87	706.37	3.80
213	1972	Ford	Econoline 300	Panel Pickup	7000	5500	302	4.24	68.51	774.11	4.13
214	1972	Ford	Econoline 300	Panel Pickup	7000	5000	302	5.84	40.75	628.82	3.53
217	1973	Chev	Cheyenne 20	Pickup	6400	5500	454	5.13	70.52	860.91	4.26
218*	1972	Chev	C/20	Pickup	6200	5000	350	7.01	49.46	636.89	4.82
219	1973	Chev	C/30	Panel Pickup	6400	5500	350	5.23	45.10	820.54	4.04
221*	1972	Ford	Econoline 300	Motor Hamp	8500	7500	302	5.55	72.23	818.19	7.26
222	1972	Dodge	Custom 300	Stake	10000	7500	318	8.00	79.97	793.44	5.13
223	1972	GMC	Custom 3500	Wrecker	9000	7500	350	9.95	82.11	523.44	7.03
227	1972	IHC	1210	Travelall	7500	6500	345	5.22	67.33	613.69	5.98
228	1972	Chev	Custom 220	Pickup	6200	5500	350	3.19	56.82	527.89	7.46
235	1972	GMC	3500	Van	7500	7500	292	5.35	79.61	788.42	7.22
238	1973	Ford	Econoline 300	Panel Pickup	8300	5500	302	6.21	47.22	566.46	5.69

TABLE 9 (Cont'd). SUMMARY IN-SPECIFICATION TESTS, 1972 AND 1973 VEHICLES

Truck No.	Year	Make	Model	Body Type	GVW (lb)	Test Inertia (lb)	Engine CID	Average Emissions, Grams/mile HC	CO	CO_2	NO_x
240	1973	IHC	1310	Pickup	10000	7500	304	10.88	131.80	859.84	3.17
241	1972	Ford	Custom F 250	Cab&Chassis	6900	6000	300	6.30	112.03	737.09	8.12
243	1972	Dodge	D-22 Chieftain	Motor Home	13000	8500	413	13.96	139.45	1131.14	14.92
245	1972	Dodge	Champion M-30	Motor Home	11000	8500	318	8.23	141.49	996.29	11.96
246*	1973	Dodge	Brave M-30	Motor Home	11000	7900	318	6.17	80.37	929.07	9.91
248	1973	Ford	Custom F 250	Pickup	7500	5500	360	3.70	29.10	781.23	5.94
249	1973	Ford	Kurbmaster	Panel	15000	7500	300	5.21	55.28	976.91	6.92
							AVERAGE	6.55	75.78	782.40	6.79

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* These trucks were received out of specifications. The results presented here are for in-specification tests. Table 7 presents the results of the as-received tests for these trucks.

TABLE 10. STATISTICAL SUMMARY OF IN-SPECIFICATION TEST RESULTS, 1972 AND 1973 VEHICLES (22 TRUCKS)

Item	Units	Average	Maximum	Minimum	Standard Deviation
HC phase 1	grams	35.20	75.33	15.61	16.00
HC phase 2	grams	23.81	63.84	10.74	13.06
HC phase 3	grams	20.32	35.12	11.38	6.40
CO phase 1	grams	383.19	949.29	191.68	187.02
CO phase 2	grams	265.84	594.26	37.94	138.12
CO phase 3	grams	241.63	522.13	27.53	123.46
CO_2 phase 1	grams	2976.10	4724.59	2050.70	697.22
CO_2 phase 2	grams	3052.38	4191.53	2027.73	584.00
CO_2 phase 3	grams	2695.79	3965.65	1725.90	628.36
NO_x phase 1	grams	25.59	51.69	13.97	9.80
NO_x phase 2	grams	23.69	55.44	9.16	13.16
NO_x phase 3	grams	28.49	60.06	13.92	11.45
HC	grams/mile	6.55	13.96	3.19	2.56
CO	grams/mile	75.78	141.49	29.10	34.13
CO_2	grams/mile	782.40	1131.14	523.44	162.51
NO_x	grams/mile	6.79	14.92	3.17	3.14
Evap. emissions	grams	0.65	2.87	0.06	0.69

TABLE 11. ROAD TEST RESULTS - TRUCKS 246 AND 250

Truck 246
1972 Winnebago Brave
(318 CID Dodge Engine, 11000 lbs GVW)

Road Data

Vehicle Weight (pounds)	Avg. Manifold Vacuum at 50 mph (inches of mercury gauge)
7400	9.00
8000	7.50
9000	6.80
9600	6.60
11200	6.25

Dynamometer Data

Manifold Vacuum at 50 mph (inches of mercury gauge)	Indicated Road Load (Hp)	Actual Road Load (Hp)
9.0	35.0	41.0
8.0	40.5	46.2
7.0	43.0	48.5
6.0	51.0	56.2

Truck 250
1972 Chevrolet Box Van
(350 CID Engine, 10000 lbs GVW)

Road Data

Vehicle Weight (pounds)	Avg. Manifold Vacuum at 50 mph (inches of mercury gauge)
7000	13.65
8000	12.95
9000	12.50
10000	12.30

Dynamometer Data

Manifold Vacuum at 50 mph (inches of mercury gauge)	Indicated Road Load (Hp)	Actual Road Load (Hp)
14.0	34.0	40.0
13.5	38.0	43.8
13.0	41.0	46.7
12.5	44.5	50.0
12.0	48.0	53.3

TABLE 12. ROAD LOAD POWER AT VARIOUS VEHICLE WEIGHTS - TRUCKS 246 AND 250

Truck 246
1972 Winnebago

Vehicle Weight (pounds)	Road Load (Hp)
7500	42.4
8000	46.5
9000	50.5
10000	52.8
11000	54.5

Truck 250
1972 Chevrolet Box Van

Vehicle Weight (pounds)	Road Load (Hp)
7000	42.6
8000	47.2
9000	50.2
10000	51.5

TABLE 13. EXHAUST EMISSION TEST RESULTS AT VARIOUS INERTIA WEIGHTS AND ROAD HORSEPOWER SETTINGS

Trucks 246 and 250

Truck 246 - 1972 Winnebago

Test Date	Run No.	Inertia Weight	Actual Road Horsepower	Emissions, Grams/Mile HC	CO	CO_2	NO_x
5/4/73	3	7900	46.0	5.71	69.08	874.00	9.27
5/5/73	4	7900	46.0	6.63	91.66	984.14	10.54
5/6/73	5	8900	50.3	7.35	103.30	1010.90	10.14
5/7/73	6	9600	52.0	6.75	101.65	1046.24	12.01
5/8/73	7	11200	54.6	7.18	109.08	1055.60	10.52
5/9/73	8	11200	54.6	7.29	107.29	1018.99	10.77

Truck 250 - 1972 Chevrolet Box Van

Test Date	Run No.	Inertia Weight	Actual Road Horsepower	Emissions, Grams/Mile HC	CO	CO_2	NO_x
5/16/73	1	7500	45.4	7.52	110.45	714.05	7.14
5/17/73	2	8500	49.0	7.33	133.82	971.28	7.59
5/18/73	3	9600	51.0	9.75	180.69	1070.72	7.58

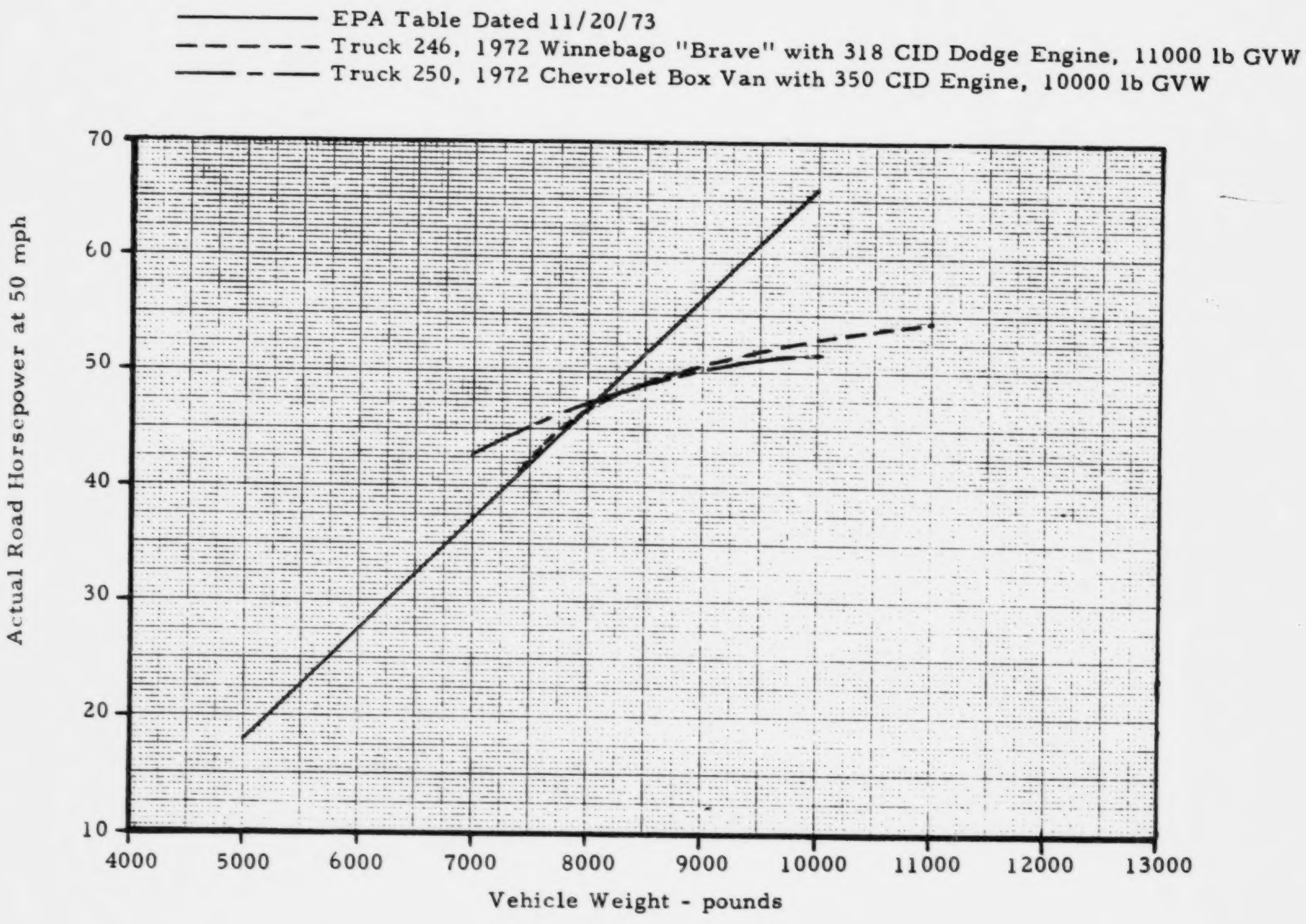

FIGURE 7. ACTUAL ROAD HORSEPOWER AS A FUNCTION OF VEHICLE WEIGHT FOR TRUCKS NO. 246 AND 250

CONCLUSIONS

With the successful completion of testing on 50 trucks with gross vehicle weights between 6,000 to 16,000 lbs, the objectives of the project have been met. The truck fleet assembled is varied enough for the test results to contribute to a proper baseline. Each truck successfully ran the light duty driving cycle. However, it appears that some change may be required in the test road load power settings at inertia weight settings above 8,500 lbs.

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5. Tyree, C. D. and Springer, K. J., "Studies of Emissions from Gasoline-Powered Vehicles Above 6,000 lb Gross Vehicle Weight," Final Report to the National Air Pollution Control Administration under Contract PH 86-67-72, July 1970.

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APPENDIX A

COMPUTER PRINTOUT OF INDIVIDUAL TEST RESULTS

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TABLE A-1.
                                              VEHICLE EMISSION RESULTS
                                        PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  200        TEST NO. 1
VEHICLE MODEL        250-CUSTOM          DATE  1/22/73                   MFGR. CODE   31
                                         ENGINE   240 CID 6              CURB WT.  4020                  YR.  1970
                                                                                                         GVW  7500
BAROMETER  29.02 IN.HG.
DRY BULB TEMP.  76.0 DEG. F
REL. HUMIDITY      33 PCT.                                        WET BULB TEMP 59.0 DEG. F
                                                                  ABS. HUMIDITY 47.1 GRAINS/LB
EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,    GRAMS                      1
     INITIAL WT., GRAMS                    250.62           2
     DIFFERENCE    GRAMS                   250.45        251.49
                                              .17        251.25
     TOTAL EVAPORATIVE EMISSIONS                             .24

EXHAUST EMISSIONS                                                            .41 GRAMS


    BLOWER DIF. PRESS., G2,  18.0 IN. H20                        BLOWER INLET PRESS., G1  18.0 IN. H20
                                                                 BLOWER INLET TEMP.  108 DEG. F
    BAG RESULTS
    BAG NO.
    BLOWER REVOLUTIONS                        1            2            3
    HC    SAMPLE  METER READING/SCALE     33197        55718        33280
    HC    SAMPLE  PPM                      12.9/4       66.0/3       87.9/3
    HC    BACKGRD METER READING/SCALE     1290          660          879
    HC    BACKGRD PPM                        2.0/3        3.0/3        2.4/3
    CO    SAMPLE  METER READING/SCALE       20           30           24
    CO    SAMPLE  PPM                       57.1/1       47.1/1       99.7/2
    CO    BACKGRD METER READING/SCALE     7933         5710         4469
    CO    BACKGRD PPM                        6.4/3        7.5/3        7.0/3
    CO2   SAMPLE  METER READING/SCALE       96          113          105
    CO2   SAMPLE  PERCENT                   98.4/3       58.1/3       87.7/3
    CO2   BACKGRD METER READING/SCALE     1.81          .96         1.57
    CO2   BACKGRD PERCENT                    3.1/3        3.6/3        3.8/3
    NOX   SAMPLE  METER READING/SCALE       .04          .05          .05
    NOX   SAMPLE  PPM                       94.1/3       70.0/2       84.8/3
    NOX   BACKGRD METER READING/SCALE    282.3         70.0        254.4
    NOX   BACKGRD PPM                        3.1/1         .8/1         .9/1
                                              .9           .2           .3
    HC    CONCENTRATION PPM
    CO    CONCENTRATION PPM              1274          634          859
    CO2   CONCENTRATION PCT              7495         5444         4198
    NOX   CONCENTRATION PPM              1.78          .91         1.52
    HC    MASS GRAMS                    281.6         64.8        254.2
    CO    MASS GRAMS                    46.20        38.56        31.22
    CO2   MASS GRAMS                   548.72       669.03       308.12
    NOX   MASS GRAMS                  2056.48      1770.38      1763.63
                                        29.94        12.46        27.09
    WEIGHTED MASS HC     10.16 GRAMS/MILE
    WEIGHTED MASS CO    144.08 GRAMS/MILE
    WEIGHTED MASS CO2   487.99 GRAMS/MILE
    WEIGHTED MASS NOX     5.44 GRAMS/MILE
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                    TABLE A-2.              VEHICLE EMISSION RESULTS
                                     PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  200          TEST NO. 2           DATE  1/23/73
VEHICLE MODEL          250-CUSTOM           ENGINE   240 CID 6              MFGR. CODE    31                    YR.  1970
                                                                            CURB WT.  4020                      GVW  7500

BAROMETER  29.45 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                              WET BULB TEMP 55.0 DEG. F
REL. HUMIDITY     20 PCT.                                                ABS. HUMIDITY 28.9 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                           1               2
     INITIAL WT., GRAMS                      248.55          253.15
     DIFFERENCE   GRAMS                      248.10          253.03
                                                .45             .12
     TOTAL EVAPORATIVE EMISSIONS
                                                                               .57 GRAMS

EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  18.0 IN. H2O                               BLOWER INLET PRESS., G1  18.0 IN. H2O
                                                                         BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                             1               2               3
     HC    SAMPLE  METER READING/SCALE          33153           55728           33472
     HC    SAMPLE  PPM                         11.5/4          63.7/3          68.4/3
     HC    BACKGRD METER READING/SCALE           1150             637             684
     HC    BACKGRD PPM                          2.0/3           2.9/3           2.1/3
     CO    SAMPLE  METER READING/SCALE             20              29              21
     CO    SAMPLE  PPM                         55.7/1          45.8/1          75.8/2
     CO    BACKGRD METER READING/SCALE           7583            5461            2975
     CO    BACKGRD PPM                          4.1/3           3.9/3           3.9/3
     CO2   SAMPLE  METER READING/SCALE             61              58              58
     CO2   SAMPLE  PERCENT                     98.9/3          56.8/3          62.6/2
     CO2   BACKGRD METER READING/SCALE           1.83             .93            1.83
     CO2   BACKGRD PERCENT                      2.9/3           2.8/3           2.4/3
     NOX   SAMPLE  METER READING/SCALE            .04             .04             .03
     NOX   SAMPLE  PPM                         96.5/3          66.0/2          42.7/4
     NOX   BACKGRD METER READING/SCALE          289.5            66.0           427.0
     NOX   BACKGRD PPM                            .1/1            .4/1            .7/1
                                                   .0              .1              .2
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                     1134             611             666
     CO2   CONCENTRATION PCT                     7219            5277            2803
     NOX   CONCENTRATION PPM                     1.74             .90            1.80
     HC    MASS GRAMS                           289.5            65.9           426.8
     CO    MASS GRAMS                           41.56           37.66           24.66
     CO2   MASS GRAMS                          534.14          656.30          209.39
     NOX   MASS GRAMS                         2094.81         1763.37         2124.27
                                                28.92           11.07           43.05
     WEIGHTED MASS HC      9.28 GRAMS/MILE
     WEIGHTED MASS CO    134.04 GRAMS/MILE
     WEIGHTED MASS CO2   516.66 GRAMS/MILE
     WEIGHTED MASS NOX     6.41 GRAMS/MILE
```

TABLE A-3. VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO. 291 TEST NO. 1 DATE 2/ 6/73 MFGR. CODE 43 YR. 69
VEHICLE MODEL C/20 ENGINE 292 CID 6 CURB WT. 4430 GVW 600

BAROMETER 29.30 IN.HG.
DRY BULB TEMP. 78.0 DEG. F
REL. HUMIDITY 48 PCT.

WET BULB TEMP 65.0 DEG. F
ABS. HUMIDITY 71.5 GRAINS/LB

EVAPORATIVE EMISSIONS

CANISTER	1	2
FINAL WT., GRAMS	250.12	250.77
INITIAL WT., GRAMS	249.84	250.74
DIFFERENCE GRAMS	.28	.03

TOTAL EVAPORATIVE EMISSIONS .31 GRAMS

EXHAUST EMISSIONS

BLOWER DIF. PRESS., G2, 17.5 IN. H2O

BLOWER INLET PRESS., G1 17.5 IN. H2O
BLOWER INLET TEMP. 110 DEG. F

BAG RESULTS

BAG NO.	1	2	3
BLOWER REVOLUTIONS	30625	54410	34533
HC SAMPLE METER READING/SCALE	10.3/4	37.6/3	45.2/3
HC SAMPLE PPM	1030	376	452
HC BACKGRD METER READING/SCALE	3.5/3	3.6/3	3.6/3
HC BACKGRD PPM	35	36	36
CO SAMPLE METER READING/SCALE	50.3/1	22.6/1	24.7/1
CO SAMPLE PPM	6357	2088	2329
CO BACKGRD METER READING/SCALE	.4/1	.4/1	.1/1
CO BACKGRD PPM	30	30	8
CO2 SAMPLE METER READING/SCALE	88.2/3	65.2/3	84.4/3
CO2 SAMPLE PERCENT	1.58	1.10	1.49
CO2 BACKGRD METER READING/SCALE	3.0/3	3.2/3	3.5/3
CO2 BACKGRD PERCENT	.04	.05	.05
NOX SAMPLE METER READING/SCALE	50.8/3	83.1/2	47.5/3
NOX SAMPLE PPM	152.4	83.1	142.5
NOX BACKGRD METER READING/SCALE	3.6/1	1.4/1	2.2/1
NOX BACKGRD PPM	1.1	.4	.7
HC CONCENTRATION PPM	1001	344	421
CO CONCENTRATION PPM	6040	1984	2220
CO2 CONCENTRATION PCT	1.54	1.05	1.45
NOX CONCENTRATION PPM	151.5	82.7	141.9
HC MASS GRAMS	33.78	20.60	16.01
CO MASS GRAMS	411.60	240.24	170.55
CO2 MASS GRAMS	1660.66	2015.21	1760.69
NOX MASS GRAMS	16.68	16.18	17.62

WEIGHTED MASS HC	5.90	GRAMS/MILE
WEIGHTED MASS CO	68.59	GRAMS/MILE
WEIGHTED MASS CO2	497.72	GRAMS/MILE
WEIGHTED MASS NOX	4.45	GRAMS/MILE

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                      TABLE A-4.            VEHICLE EMISSION RESULTS
                                       PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  201        TEST NO. 2          DATE  2/ 7/73                    MFGR. CODE   43                    YR.  1969
VEHICLE MODEL  C/20                      ENGINE   292 CID 6               CURB WT.  4430                     GVW  7500

BAROMETER  29.22 IN.HG.
DRY BULB TEMP.  75.0 DEG. F                                       WET BULB TEMP 65.0 DEG. F
REL. HUMIDITY      56 PCT.                                        ABS. HUMIDITY 76.3 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                      1               2
     FINAL WT.,    GRAMS                        246.69          248.17
     INITIAL WT., GRAMS                         246.58          248.05
     DIFFERENCE    GRAMS                           .11             .12

     TOTAL EVAPORATIVE EMISSIONS
                                                                         .23 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H20                        BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                  BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                       1               2               3
     BLOWER REVOLUTIONS                         33794           55315           33119
     HC    SAMPLE  METER READING/SCALE          13.4/4          38.9/3          30.8/3
     HC    SAMPLE  PPM                          1340             389             308
     HC    BACKGRD METER READING/SCALE           4.2/3           3.6/3           3.2/3
     HC    BACKGRD PPM                            42              36              32
     CO    SAMPLE  METER READING/SCALE          54.2/1          21.7/1          17.9/1
     CO    SAMPLE  PPM                          7224            1987            1581
     CO    BACKGRD METER READING/SCALE            .4/1            .5/1            .6/1
     CO    BACKGRD PPM                            30              38              46
     CO2   SAMPLE  METER READING/SCALE          61.7/2          68.4/3          76.2/3
     CO2   SAMPLE  PERCENT                      1.80            1.16            1.32
     CO2   BACKGRD METER READING/SCALE           3.6/3           3.5/3           4.4/3
     CO2   BACKGRD PERCENT                       .05             .05             .06
     NOX   SAMPLE  METER READING/SCALE          52.0/3          32.4/3          53.6/3
     NOX   SAMPLE  PPM                          156.0            97.2           160.8
     NOX   BACKGRD METER READING/SCALE            .1/3            .5/3           1.0/3
     NOX   BACKGRD PPM                            .3             1.5             3.0

     HC    CONCENTRATION PPM                    1306             357             280
     CO    CONCENTRATION PPM                    6818            1873            1473
     CO2   CONCENTRATION PCT                    1.76            1.11            1.26
     NOX   CONCENTRATION PPM                    155.8            95.9           158.1
     HC    MASS GRAMS                           48.51           21.68           10.18
     CO    MASS GRAMS                          511.24          229.90          108.21
     CO2   MASS GRAMS                         2080.23         2159.09         1465.26
     NOX   MASS GRAMS                           19.31           19.45           19.21

     WEIGHTED MASS HC      6.45 GRAMS/MILE
     WEIGHTED MASS CO     68.19 GRAMS/MILE
     WEIGHTED MASS CO2   518.50 GRAMS/MILE
     WEIGHTED MASS NOX     5.16 GRAMS/MILE
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                 TABLE A-5.          VEHICLE EMISSION RESULTS
                               PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  202        TEST NO. 1           DATE  2/ 6/75             MFGR. CODE   43                 YR.  1966
VEHICLE MODEL  2C                         ENGINE   327 CID 8        CURB WT.  4260                  GVW  7500

BAROMETER  29.25 IN.HG.                                             WET BULB TEMP 65.0 DEG. F
DRY BULB TEMP.  79.0 DEG. F                                         ABS. HUMIDITY 69.8 GRAINS/LB
REL. HUMIDITY      45 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                  1             2
     FINAL WT.,   GRAMS                     245.41        248.76
     INITIAL WT., GRAMS                     245.34        248.67
     DIFFERENCE   GRAMS                        .07           .09

     TOTAL EVAPORATIVE EMISSIONS                                           .16 GRAMS


EXHAUST EMISSIONS
                                                                    BLOWER INLET PRESS., G1  16.5 IN. H2O
     BLOWER DIF. PRESS., G2  16.5 IN. H2O                           BLOWER INLET TEMP.  111 DEG. F

     BAG RESULTS
     BAG NO.                                   1             2             3
     BLOWER REVOLUTIONS                     32549         55951         33235
     HC   SAMPLE  METER READING/SCALE       44.9/4        23.8/4        36.5/4
     HC   SAMPLE  PPM                       4490          2380          3650
     HC   BACKGRD METER READING/SCALE        3.6/3         6.1/3         4.8/3
     HC   BACKGRD PPM                        36            61            48
     CO   SAMPLE  METER READING/SCALE       49.8/1        88.1/2        49.7/1
     CO   SAMPLE  PPM                       6252          3694          6231
     CO   BACKGRD METER READING/SCALE        1.5/2         1.5/2         1.3/2
     CO   BACKGRD PPM                        42            42            37
     CO2  SAMPLE  METER READING/SCALE       68.3/2        74.5/3        70.6/2
     CO2  SAMPLE  PERCENT                   2.03          1.28          2.11
     CO2  BACKGRD METER READING/SCALE        2.9/3         3.3/3         3.6/3
     CO2  BACKGRD PERCENT                    .04           .05           .05
     NOX  SAMPLE  METER READING/SCALE       44.5/3        90.7/2        65.3/3
     NOX  SAMPLE  PPM                       148.5         90.7         195.9
     NOX  BACKGRD METER READING/SCALE         .1/3          .4/3          .3/3
     NOX  BACKGRD PPM                         .3           1.2            .9

     HC   CONCENTRATION PPM                 4462          2328          3613
     CO   CONCENTRATION PPM                 5884          3513          5859
     CO2  CONCENTRATION PCT                 2.00          1.24          2.07
     NOX  CONCENTRATION PPM                 148.3         89.7         195.2
     HC   MASS GRAMS                        160.24        143.67        132.47
     CO   MASS GRAMS                        426.60        437.81        433.72
     CO2  MASS GRAMS                       2286.04       2446.00       2421.25
     NOX  MASS GRAMS                         17.24         17.92         23.18

     WEIGHTED MASS HC     38.41 GRAMS/MILE
     WEIGHTED MASS CO    115.90 GRAMS/MILE
     WEIGHTED MASS CO2   641.21 GRAMS/MILE
     WEIGHTED MASS NOX     5.14 GRAMS/MILE
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                          TABLE A-6.        VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO. 202        TEST NO. 2          DATE  2/ 7/73                MFGR. CODE   43                 YR.  1966
VEHICLE MODEL  20                       ENGINE   327 CID 8           CURB WT.  4260                  GVW  7500

BAROMETER  29.21 IN.HG.                                          WET BULB TEMP 65.0 DEG. F
DRY BULB TEMP.  78.0 DEG. F                                      ABS. HUMIDITY 71.5 GRAINS/LB
REL. HUMIDITY     48 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                   1             2
     FINAL WT.,   GRAMS                    252.48        250.52
     INITIAL WT., GRAMS                    252.35        250.45
     DIFFERENCE   GRAMS                       .13           .07

     TOTAL EVAPORATIVE EMISSIONS                                          .20 GRAMS


EXHAUST EMISSIONS
                                                                  BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                        BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                    1             2              3
     BLOWER REVOLUTIONS                     34909         55737          32791
     HC   SAMPLE  METER READING/SCALE      43.7/4        24.1/4         39.6/4
     HC   SAMPLE  PPM                        4370          2410           3960
     HC   BACKGRD METER READING/SCALE       3.1/3         3.8/3          3.6/3
     HC   BACKGRD PPM                          31            38             36
     CO   SAMPLE  METER READING/SCALE      52.6/1        38.6/1         52.3/1
     CO   SAMPLE  PPM                        6857          4222           6790
     CO   BACKGRD METER READING/SCALE        .4/1          .9/1          1.3/1
     CO   BACKGRD PPM                          30            69            100
     CO2  SAMPLE  METER READING/SCALE      73.3/2        73.7/3         71.9/2
     CO2  SAMPLE  PERCENT                    2.21          1.27           2.16
     CO2  BACKGRD METER READING/SCALE       3.6/3         3.3/3          4.2/3
     CO2  BACKGRD PERCENT                     .05           .05            .06
     NOX  SAMPLE  METER READING/SCALE      54.6/3        24.5/3         57.7/3
     NOX  SAMPLE  PPM                       163.8          73.5          173.1
     NOX  BACKGRD METER READING/SCALE        .4/3          .9/3           .2/3
     NOX  BACKGRD PPM                         1.2           2.7             .6

     HC   CONCENTRATION PPM                  4347          2377           3933
     CO   CONCENTRATION PPM                  6437          3996           6328
     CO2  CONCENTRATION PCT                  2.17          1.23           2.11
     NOX  CONCENTRATION PPM                 162.9          71.2          172.6
     HC   MASS GRAMS                       166.69        145.57         141.66
     CO   MASS GRAMS                       498.38        493.94         460.25
     CO2  MASS GRAMS                      2653.29       2394.17        2425.63
     NOX  MASS GRAMS                        20.38         14.22          20.29

     WEIGHTED MASS HC     39.73 GRAMS/MILE
     WEIGHTED MASS CO    129.41 GRAMS/MILE
     WEIGHTED MASS CO2   655.69 GRAMS/MILE
     WEIGHTED MASS NOX     4.61 GRAMS/MILE
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TABLE A-7.

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                                  VEHICLE EMISSION RESULTS
                              PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  203        TEST NO. 1           DATE  3/ 8/73                MFGR. CODE   43                YR.  1968
VEHICLE MODEL  20                         ENGINE   327 CID P           CURB WT.  4390                GVW  7500

BAROMETER  29.33 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                   WET BULB TEMP 55.0 DEG. F
REL. HUMIDITY     18 PCT.                                     ABS. HUMIDITY 27.3 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                   1              2
     FINAL WT.,    GRAMS                     250.73         252.10
     INITIAL WT., GRAMS                      250.54         251.91
     DIFFERENCE    GRAMS                        .19            .19

     TOTAL EVAPORATIVE EMISSIONS                                             .38 GRAMS

EXHAUST EMISSIONS

                                                              BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                    BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                    1              2              3
     BLOWER REVOLUTIONS                      33270          55577          33034
     HC    SAMPLE  METER READING/SCALE        19.9/4         13.7/4         15.5/4
     HC    SAMPLE  PPM                       1990           1370           1550
     HC    BACKGRD METER READING/SCALE         2.6/3          2.5/3          2.5/3
     HC    BACKGRD PPM                          26             25             25
     CO    SAMPLE  METER READING/SCALE        70.4/1         59.0/1         62.9/1
     CO    SAMPLE  PPM                      12139           8431           9548
     CO    BACKGRD METER READING/SCALE          .9/2          1.0/2           .7/2
     CO    BACKGRD PPM                          25             28             20
     CO2   SAMPLE  METER READING/SCALE        66.4/2         62.4/3         61.2/2
     CO2   SAMPLE  PERCENT                    1.96           1.04           1.78
     CO2   BACKGRD METER READING/SCALE         4.5/3          3.2/3          2.2/3
     CO2   BACKGRD PERCENT                     .07            .05            .03
     NOX   SAMPLE  METER READING/SCALE        49.0/3         12.3/3         52.1/3
     NOX   SAMPLE  PPM                       147.0           36.9          156.3
     NOX   BACKGRD METER READING/SCALE         0.0/4           .5/3          0.0/3
     NOX   BACKGRD PPM                         0.0            1.5            0.0

     HC    CONCENTRATION PPM                 1970           1349           1530
     CO    CONCENTRATION PPM                11590           8189           9148
     CO2   CONCENTRATION PCT                  1.91           1.00           1.76
     NOX   CONCENTRATION PPM                 147.0           35.6          156.3
     HC    MASS GRAMS                         72.33          82.70          55.77
     CO    MASS GRAMS                        858.89        1013.65         673.14
     CO2   MASS GRAMS                       2238.52        1957.91        2041.23
     NOX   MASS GRAMS                         14.62           5.92          15.43

     WEIGHTED MASS HC     19.41 GRAMS/MILE
     WEIGHTED MASS CO    235.55 GRAMS/MILE
     WEIGHTED MASS CO2   544.53 GRAMS/MILE
     WEIGHTED MASS NOX     2.80 GRAMS/MILE
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TABLE A-8.

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                                              VEHICLE EMISSION RESULTS
                                         PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  203        TEST NO. 2          DATE  3/ 9/73                   MFGR. CODE   43                YR.  1968
VEHICLE MODEL  20                        ENGINE   327 CID 8              CURB WT.  4390                 GVW  7500

                                                                      WET BULB TEMP 53.0 DEG. F
BAROMETER  29.55 IN.HG.                                               ABS. HUMIDITY 22.7 GRAINS/LB
DRY BULB TEMP.  76.0 DEG. F
REL. HUMIDITY     16 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                   1              2
     FINAL WT.,    GRAMS                     248.16         252.74
     INITIAL WT ,  GRAMS                     248.01         252.63
     DIFFERENCE    GRAMS                        .15            .11

     TOTAL EVAPORATIVE EMISSIONS                                      .26 GRAMS


EXHAUST EMISSIONS
                                                                      BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                            BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                     1              2              3
     BLOWER REVOLUTIONS                      33234          55658          33180
     HC   SAMPLE  METER READING/SCALE        21.8/4         13.9/4         15.1/4
     HC   SAMPLE  PPM                         2180           1390           1510
     HC   BACKGRD METER READING/SCALE         3.3/3          2.9/3          3.4/3
     HC   BACKGRD PPM                           33             29             34
     CO   SAMPLE  METER READING/SCALE        69.4/1         59.8/1         60.3/1
     CO   SAMPLE  PPM                        11753           8649           8788
     CO   BACKGRD METER READING/SCALE          .2/1           .1/1          0.0/1
     CO   BACKGRD PPM                           15              8              0
     CO2  SAMPLE  METER READING/SCALE        63.1/2         59.6/3         92.2/3
     CO2  SAMPLE  PERCENT                     1.85            .99           1.67
     CO2  BACKGRD METER READING/SCALE         2.1/3          2.7/3          3.7/3
     CO2  BACKGRD PERCENT                      .03            .04            .05
     NOX  SAMPLE  METER READING/SCALE        46.6/3         12.0/3         52.7/3
     NOX  SAMPLE  PPM                        139.8           36.0          158.1
     NOX  BACKGRD METER READING/SCALE          .1/3          1.0/3           .3/3
     NOX  BACKGRD PPM                           .3            3.0             .9

     HC   CONCENTRATION PPM                   215            1365           1483
     CO   CONCENTRATION PPM                  11262           8433           8459
     CO2  CONCENTRATION PCT                   1.82            .95           1.63
     NOX  CONCENTRATION PPM                  139.6           33.4          157.4
     HC   MASS GRAMS                         79.63          84.49          54.70
     CO   MASS GRAMS                        840.23        1053.63         630.10
     CO2  MASS GRAMS                       2148.77     18[illegible]1.56        1913.70
     NOX  MASS GRAMS                         13.73           5.51          15.46

     WEIGHTED MASS HC     19.99 GRAMS/MILE
     WEIGHTED MASS CO    236.55 GRAMS/MILE
     WEIGHTED MASS CO2   519.51 GRAMS/MILE
     WEIGHTED MASS NOX     2.70 GRAMS/MILE
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                    TABLE A-9.          VEHICLE EMISSION RESULTS
                                 PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  204        TEST NO. 2         DATE  2/ 8/73              MFGR. CODE   43              YR.  1971
VEHICLE MODEL  CHEYENNE 20              ENGINE   350 CID 8         CURB WT.  4400               GVW  6200

BAROMETER  29.55 IN.HG.                                     WET BULB TEMP 54.0 DEG. F
DRY BULB TEMP.  78.0 DEG. F                                 ABS. HUMIDITY 23.3 GRAINS/LB
REL. HUMIDITY     16 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                             1          2
     FINAL WT.,   GRAMS              246.63     253.98
     INITIAL WT., GRAMS              246.45     253.74
     DIFFERENCE   GRAMS                 .18        .24

     TOTAL EVAPORATIVE EMISSIONS                             .42 GRAMS


EXHAUST EMISSIONS

                                                          BLOWER INLET PRESS., G1  17.5 IN. H20
     BLOWER DIF. PRESS., G2,  17.5 IN. H20                BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                              1          2          3
     BLOWER REVOLUTIONS               33295      55764      33157
     HC   SAMPLE  METER READING/SCALE  54.0/3     24.3/3     32.8/3
     HC   SAMPLE  PPM                   540        243        328
     HC   BACKGRD METER READING/SCALE   2.8/3      2.3/3      1.6/3
     HC   BACKGRD PPM                   28         23         16
     CO   SAMPLE  METER READING/SCALE  23.4/1      9.5/1     12.1/1
     CO   SAMPLE  PPM                  2179        779       1014
     CO   BACKGRD METER READING/SCALE    .1/1       .1/1      0.0/1
     CO   BACKGRD PPM                     8          8          0
     CO2  SAMPLE  METER READING/SCALE  83.2/2     84.0/3     73.2/2
     CO2  SAMPLE  PERCENT              2.58       1.49       2.21
     CO2  BACKGRD METER READING/SCALE   1.9/3      2.3/3      3.4/3
     CO2  BACKGRD PERCENT               .03        .03        .05
     NOX  SAMPLE  METER READING/SCALE  31.8/4     51.8/3     33.3/4
     NOX  SAMPLE  PPM                 318.0      155.4      333.0
     NOX  BACKGRD METER READING/SCALE    .2/3      2.6/3      1.1/3
     NOX  BACKGRD PPM                    .6        7.8        3.3

     HC   CONCENTRATION PPM             518        223        315
     CO   CONCENTRATION PPM            2053        746        966
     CO2  CONCENTRATION PCT            2.56       1.46       2.16
     NOX  CONCENTRATION PPM           317.5      148.5      330.3
     HC   MASS GRAMS                  19.17      13.81      11.61
     CO   MASS GRAMS                 153.46      93.34      71.91
     CO2  MASS GRAMS                3022.61    2880.25    2544.97
     NOX  MASS GRAMS                  31.37      24.57      32.49

     WEIGHTED MASS HC      3.82 GRAMS/MILE
     WEIGHTED MASS CO     26.71 GRAMS/MILE
     WEIGHTED MASS CO2  250.25 GRAMS/MILE
     WEIGHTED MASS NOX    7.54 GRAMS/MILE
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                          TABLE A-10.              VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  204         TEST NO. 2
VEHICLE MODEL  CHEYENNE 20             DATE  2/10/73                        MFGR. CODE   43
                                       ENGINE   350 CID 8                   CURB WT.  4400                  YR.  1971
                                                                                                            GVW  6200
BAROMETER  29.47 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                             WET BULB TEMP 53.0 DEG. F
REL. HUMIDITY     13 PCT.                                               ABS. HUMIDITY 19.4 GRAINS/LB

EVAPORATIVE EMISSIONS

    CANISTER                                     1            2
    FINAL WT.,    GRAMS                       250.42       249.24
    INITIAL WT., GRAMS                        250.27       249.05
    DIFFERENCE    GRAMS                          .15          .19

    TOTAL EVAPORATIVE EMISSIONS
                                                                       .34 GRAMS

EXHAUST EMISSIONS

    BLOWER DIF. PRESS., G2,  17.6 IN. H2O                        BLOWER INLET PRESS., G1  17.8 IN. H2O
                                                                 BLOWER INLET TEMP.  110 DEG. F
    BAG RESULTS
    BAG NO.
    BLOWER REVOLUTIONS                           1            2            3
    HC   SAMPLE  METER READING/SCALE          40.7/3       21.1/3       27.3/3
    HC   SAMPLE  PPM                           407          211          273
    HC   BACKGRD METER READING/SCALE           1.7/3        2.0/3        1.5/3
    HC   BACKGRD PPM                            17           20           15
    CO   SAMPLE  METER READING/SCALE          20.5/1        8.2/1        8.7/1
    CO   SAMPLE  PPM                          1856          665          708
    CO   BACKGRD METER READING/SCALE            .2/1         .2/1         .2/1
    CO   BACKGRD PPM                            15           15           15
    CO2  SAMPLE  METER READING/SCALE          75.0/2       81.4/3       66.0/2
    CO2  SAMPLE  PERCENT                       2.27         1.43         1.95
    CO2  BACKGRD METER READING/SCALE           3.0/3        2.9/3        2.9/3
    CO2  BACKGRD PERCENT                        .04          .04          .04
    NOX  SAMPLE  METER READING/SCALE          28.4/3       44.6/3       92.3/3
    NOX  SAMPLE  PPM                          235.2        133.8        276.9
    NOX  BACKGRD METER READING/SCALE            .1/3        1.6/3         .6/3
    NOX  BACKGRD PPM                            .3          4.8          1.8

    HC   CONCENTRATION PPM                     393          193          260
    CO   CONCENTRATION PPM                    1255          630          666
    CO2  CONCENTRATION PCT                     2.24         1.34         1.91
    NOX  CONCENTRATION PPM                    235.0        129.5        275.4
    HC   MASS GRAMS                           14.60        11.98         9.25
    CO   MASS GRAMS                          131.51        78.84        47.22
    CO2  MASS GRAMS                         2647.41      2251.93      2167.12
    NOX  MASS GRAMS                           22.94        21.12        25.74

    WEIGHTED MASS HC      3.14 GRAMS/MILE
    WEIGHTED MASS CO     21.68 GRAMS/MILE
    WEIGHTED MASS CO2   683.41 GRAMS/MILE
    WEIGHTED MASS NOX     6.09 GRAMS/MILE
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                         TABLE A-11.          VEHICLE EMISSION RESULTS
                                         PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  205          TEST NO. 1        , DATE  2/13/73
VEHICLE MODEL  CHAMPION-DODGE              ENGINE   318-CID 8             MFGR. CODE   -0                      YR.  1973
                                                                           CURB WT.  7730                       GVW 11000

BAROMETER  29.05 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                               WET BULB TEMP 66.0 DEG. F
REL. HUMIDITY      51 PCT.                                                 ABS. HUMIDITY 76.4 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                   1             2
     FINAL WT.,   GRAMS                     246.37        250.46
     INITIAL WT., GRAMS                     246.36        250.44
     DIFFERENCE   GRAMS                        .01           .02

     TOTAL EVAPORATIVE EMISSIONS
                                                                       .03 GRAMS

EXHAUST EMISSIONS

                                                                   BLOWER INLET PRESS., G1  17.8 IN. H2O
     BLOWER DIF. PRESS., G2,  17.8 IN. H2O                         BLOWER INLET TEMP.  108 DEG. F

     BAG RESULTS
     BAG NO.                                      1             2             3
     BLOWER REVOLUTIONS                       34880         55975         33193
     HC    SAMPLE  METER READING/SCALE         12.1/4        58.1/3        80.6/3
     HC    SAMPLE  PPM                        1210           581           806
     HC    BACKGRD METER READING/SCALE          3.4/3         4.2/3         3.6/3
     HC    BACKGRD PPM                          34            42            36
     CO    SAMPLE  METER READING/SCALE         56.0/1        38.4/1        53.4/1
     CO    SAMPLE  PPM                        7657          4190          7038
     CO    BACKGRD METER READING/SCALE          1.3/1         1.0/1          .7/1
     CO    BACKGRD PPM                         100            76            53
     CO2   SAMPLE  METER READING/SCALE         31.9/1        69.8/2        94.3/2
     CO2   SAMPLE  PERCENT                     3.04          2.08          3.03
     CO2   BACKGRD METER READING/SCALE          4.7/3         6.9/3         2.9/3
     CO2   BACKGRD PERCENT                      .07           .10           .04
     NOX   SAMPLE  METER READING/SCALE         33.0/4        28.7/4        39.1/4
     NOX   SAMPLE  PPM                        330.0         287.0         391.0
     NOX   BACKGRD METER READING/SCALE          1.2/3         1.8/3          .7/3
     NOX   BACKGRD PPM                          3.6           5.4           2.1

     HC    CONCENTRATION PPM                  1186           547           780
     CO    CONCENTRATION PPM                  7013          3893          6475
     CO2   CONCENTRATION PCT                  2.99          2.00          3.00
     NOX   CONCENTRATION PPM                  327.4         282.6         389.5
     HC    MASS GRAMS                          45.27         33.51         28.34
     CO    MASS GRAMS                         540.61        481.51        474.96
     CO2   MASS GRAMS                        3643.11       3909.06       3472.64
     NOX   MASS GRAMS                          41.74         57.82         47.25

     WEIGHTED MASS HC       9.22 GRAMS/MILE
     WEIGHTED MASS CO     131.29 GRAMS/MILE
     WEIGHTED MASS CO2    994.00 GRAMS/MILE
     WEIGHTED MASS NOX     13.69 GRAMS/MILE
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TABLE A-12.

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                                           VEHICLE EMISSION RESULTS
                                    PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  205       TEST NO. 2         DATE  2/14/73
VEHICLE MODEL  CHAMPION DODGE          ENGINE   318 CID 8             MFGR. CODE   -0                 YR.  1973
                                                                      CURB WT.  7730                  GVW 11000

BAROMETER  29.35 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                     WET BULB TEMP 52.0 DEG. F
REL. HUMIDITY     11 PCT.                                       ABS. HUMIDITY 15.6 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                        1              2
     INITIAL WT., GRAMS                     251.48         250.22
     DIFFERENCE   GRAMS                     251.44         250.17
                                               .04            .05
     TOTAL EVAPORATIVE EMISSIONS
                                                                          .09 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                      BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                BLOWER INLET TEMP.  108 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                        1              2              3
     HC   SAMPLE  METER READING/SCALE       34269          55163          32969
     HC   SAMPLE  PPM                        12.8/4         51.6/3         70.3/3
     HC   BACKGRD METER READING/SCALE       1280            516            703
     HC   BACKGRD PPM                         2.3/3          2.4/3          1.9/3
     CO   SAMPLE  METER READING/SCALE         23             24             19
     CO   SAMPLE  PPM                       55.3/1         38.2/1         42.6/1
     CO   BACKGRD METER READING/SCALE       7486           4159           4884
     CO   BACKGRD PPM                         .2/1           .2/1          0.0/1
     CO2  SAMPLE  METER READING/SCALE         15             15              0
     CO2  SAMPLE  PERCENT                   36.4/1         66.6/2         97.6/2
     CO2  BACKGRD METER READING/SCALE       3.57           1.97           3.17
     CO2  BACKGRD PERCENT                    3.9/3          3.9/3          3.2/3
     NOX  SAMPLE  METER READING/SCALE        .04            .06            .05
     NOX  SAMPLE  PPM                       41.0/4         30.1/4         48.5/4
     NOX  BACKGRD METER READING/SCALE      410.0          301.0          485.0
     NOX  BACKGRD PPM                         .6/3          1.6/3          1.1/3
                                              1.8            4.8            3.3
     HC   CONCENTRATION PPM
     CO   CONCENTRATION PPM                 1265            496            689
     CO2  CONCENTRATION PCT                 6936           3975           4570
     NOX  CONCENTRATION PPM                 3.53           1.92           3.13
     HC   MASS GRAMS                       408.8          297.1          482.6
     CO   MASS GRAMS                       48.01          30.33          25.18
     CO2  MASS GRAMS                      531.66         490.46         337.00
     NOX  MASS GRAMS                     4277.95        3746.43        3648.67
                                          40.25          47.08          45.71
     WEIGHTED MASS HC       8.71 GRAMS/MILE
     WEIGHTED MASS CO     121.44 GRAMS/MILE
     WEIGHTED MASS CO2   1022.09 GRAMS/MILE
     WEIGHTED MASS NOX     12.06 GRAMS/MILE
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TABLE A-13.

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                                                VEHICLE EMISSION RESULTS
                                           PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  206          TEST NO. 1
VEHICLE MODEL  1210 IHC                 DATE  2/15/73
                                        ENGINE   345 CID 8              MFGR. CODE  270
                                                                        CURB WT.  4450                    YR.  1971
BAROMETER  29.50 IN.HG.                                                                                   GVW  6100
DRY BULB TEMP.  76.0 DEG. F
REL. HUMIDITY     19 PCT.                                           WET BULB TEMP 54.0 DEG. F
                                                                    ABS. HUMIDITY 26.6 GRAINS/LB
EVAPORATIVE EMISSIONS

   CANISTER
   FINAL WT.,   GRAMS                         1             2
   INITIAL WT., GRAMS                      254.13        248.71
   DIFFERENCE   GRAMS                      254.06        248.65
                                              .07           .06
   TOTAL EVAPORATIVE EMISSIONS
                                                                        .13 GRAMS
EXHAUST EMISSIONS

   BLOWER DIF. PRESS., G2,  17.6 IN. H2O                           BLOWER INLET PRESS., G1  17.6 IN. H2O
                                                                    BLOWER INLET TEMP.  108 DEG. F
   BAG RESULTS
   BAG NO.
   BLOWER REVOLUTIONS                           1            2
   HC   SAMPLE  METER READING/SCALE         32248        55798            3
   HC   SAMPLE  PPM                          73.9/3       37.5/3       33157
   HC   BACKGRD METER READING/SCALE           759          375          53.8/3
   HC   BACKGRD PPM                           2.2/3        2.2/3         538
   CO   SAMPLE  METER READING/SCALE            22           22           1.9/3
   CU   SAMPLE  PPM                          32.7/1       23.2/1          19
   CO   BACKGRD METER READING/SCALE          3349         2156          30.1/1
   CO   BACKGRD PPM                           0.0/1        0.0/1        2999
   CO2  SAMPLE  METER READING/SCALE             0            0           0.0/1
   CO2  SAMPLE  PERCENT                      70.9/2       72.8/3           0
   CO2  BACKGRD METER READING/SCALE          2.12         1.25          62.0/2
   CO2  BACKGRD PERCENT                       3.3/3        3.3/3        1.81
   NOX  SAMPLE  METER READING/SCALE           .05          .05           2.9/3
   NOX  SAMPLE  PPM                          67.1/3       25.9/3         .04
   NOX  BACKGRD METER READING/SCALE          201.3        77.7          63.6/3
   NOX  BALKGRD PPM                           .3/3         .9/3         190.8
                                               .9          2.7           .8/3
   HC   CONCENTRATION PPM                                                2.4
   CO   CONCENTRATION PPM                     721          355           522
   CO2  CONCENTRATION PLT                    3192         2091          2876
   NOX  CONCENTRATION PPM                    2.08         1.21          1.77
   HC   MASS GRAMS                          200.6         75.3          188.8
   CO   MASS GRAMS                          25.89        22.08          19.27
   CO2  MASS GRAMS                         231.36       262.20         214.35
   NOX  MASS GRAMS                        2384.85      2389.42        2087.81
                                            19.45        12.64
   WEIGHTED MASS HC       5.89 GRAMS/MILE                               18.83
   WEIGHTED MASS CO      64.51 GRAMS/MILE
   WEIGHTFD MASS CO2    613.99 GRAMS/MILE
   WEIGHTFD MASS NOX      4.23 GRAMS/MILE
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                      TABLE  A-14.          VEHICLE EMISSION RESULTS
                                     PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  206        TEST NO. 2         DATE  2/16/73                MFGR. CODE  270              YR.  1971
VEHICLE MODEL  1210 IHC                 ENGINE   345 CID 8           CURB WT.  4450               GVW  6100

BAROMETER  29.56 IN.HG.
DRY BULB TEMP.  79.0 DEG. F                                       WET BULB TEMP 55.0 DEG. F
REL. HUMIDITY      17 PCT.                                        ABS. HUMIDITY 25.6 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                 1              2
     FINAL WT.,   GRAMS                    248.01         247.90
     INITIAL WT., GRAMS                    247.27         247.20
     DIFFERENCE   GRAMS                       .74            .70

     TOTAL EVAPORATIVE EMISSIONS                                        1.44 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.6 IN. H2O                        BLOWER INLET PRESS., G1  17.6 IN. H2O
                                                                  BLOWER INLET TEMP.  108 DEG. F
     BAG RESULTS
     BAG NO.                                  1              2              3
     BLOWER REVOLUTIONS                    33326          55684          33206
     HC    SAMPLE  METER READING/SCALE     74.3/3         38.8/3         54.0/3
     HC    SAMPLE  PPM                     743            388            540
     HC    BACKGRD METER READING/SCALE      2.1/3          1.1/3          2.1/3
     HC    BACKGRD PPM                      21             11             21
     CO    SAMPLE  METER READING/SCALE     31.5/1         23.8/1         29.8/1
     CO    SAMPLE  PPM                     3185           2224           2960
     CO    BACKGRD METER READING/SCALE      0.0/1          0.0/1           .1/1
     CO    BACKGRD PPM                       0              0              8
     CO2   SAMPLE  METER READING/SCALE     70.2/2         71.8/3         62.2/2
     CO2   SAMPLE  PERCENT                 2.10           1.23           1.82
     CO2   BACKGRD METER READING/SCALE      3.3/3          1.0/3          3.2/3
     CO2   BACKGRD PERCENT                  .05            .01            .05
     NOX   SAMPLE  METER READING/SCALE     60.1/3         24.2/3         61.2/3
     NOX   SAMPLE  PPM                     180.3          72.6           183.6
     NOX   BACKGRD METER READING/SCALE       .3/3           .1/3           .2/3
     NOX   BACKGRD PPM                       .9             .3             .6

     HC    CONCENTRATION PPM                726            378            522
     CO    CONCENTRATION PPM               3039           2160           2834
     CO2   CONCENTRATION PCT               2.06           1.22           1.78
     NOX   CONCENTRATION PPM               174.6          72.3           183.1
     HC    MASS GRAMS                      26.99          23.50          19.35
     CO    MASS GRAMS                      228.16         270.91         211.98
     CO2   MASS GRAMS                      2439.76        2407.48        2099.14
     NOX   MASS GRAMS                      17.97          12.10          18.26

     WEIGHTED MASS HC       6.15 GRAMS/MILE
     WEIGHTED MASS CO      65.31 GRAMS/MILE
     WEIGHTED MASS CO2    620.41 GRAMS/MILE
     WEIGHTED MASS NOX      4.03 GRAMS/MILE
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                    TABLE A-15.          VEHICLE EMISSION RESULTS
                                  PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  207        TEST NO. 1          DATE  2/16/73                  MFGR. CODE  270               YR.  1966
VEHICLE MODEL  IHC 1200                  ENGINE   266 CID *             CURB WT.  5900                GVW  8000

BAROMETER  29.55 IN.HG.
DRY BULB TEMP.  79.0 DEG. F                                           WET BULB TEMP 55.0 DEG. F
REL. HUMIDITY      17 PCT.                                            ABS. HUMIDITY 25.6 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                      1             2
     FINAL WT.,    GRAMS                        247.83        252.45
     INITIAL WT., GRAMS                         247.66        252.30
     DIFFERENCE    GRAMS                           .17           .15

     TOTAL EVAPORATIVE EMISSIONS                                           .32 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.8 IN. H2O                            BLOWER INLET PRESS., G1  17.8 IN. H2O
                                                                      BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                       1             2             3
     BLOWER REVOLUTIONS                          33465         55994         33146
     HC    SAMPLE  METER READING/SCALE            18.8/4        11.3/4        15.2/4
     HC    SAMPLE  PPM                           1880          1130          1520
     HC    BACKGRD METER READING/SCALE             2.4/3         3.5/3         3.2/3
     HC    BACKGRD PPM                              24            35            32
     CO    SAMPLE  METER READING/SCALE            52.8/1        49.6/1        55.5/1
     CO    SAMPLE  PPM                           6902          6210          7534
     CO    BACKGRD METER READING/SCALE              .1/1          .2/1          .2/1
     CO    BACKGRD PPM                               8            15            15
     CO2   SAMPLE  METER READING/SCALE            81.8/2        73.8/3        72.1/2
     CO2   SAMPLE  PERCENT                        2.53          1.27          2.17
     CO2   BACKGRD METER READING/SCALE             2.9/3         3.2/3         2.8/3
     CO2   BACKGRD PERCENT                         .04           .05           .04
     NOX   SAMPLE  METER READING/SCALE            76.2/3        28.9/3        77.6/3
     NOX   SAMPLE  PPM                           228.6          86.7         232.8
     NOX   BACKGRD METER READING/SCALE              .1/3          .7/3          .6/3
     NOX   BACKGRD PPM                              .3           2.1           1.8

     HC    CONCENTRATION PPM                     1862          1100          1495
     CO    CONCENTRATION PPM                     6523          6012          7168
     CO2   CONCENTRATION PCT                     2.50          1.23          2.13
     NOX   CONCENTRATION PPM                    228.4          84.9         231.4
     HC    MASS GRAMS                           69.19         68.40         55.03
     CO    MASS GRAMS                          489.37        754.71        532.63
     CO2   MASS GRAMS                         2958.22       2438.20       2504.49
     NOX   MASS GRAMS                           22.85         14.21         22.93

     WEIGHTED MASS HC       17.27 GRAMS/MILE
     WEIGHTED MASS CO      169.16 GRAMS/MILE
     WEIGHTED MASS CO2     685.04 GRAMS/MILE
     WEIGHTED MASS NOX       4.95 GRAMS/MILE
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                              TABLE  A-16.          VEHICLE EMISSION RESULTS
                                               PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  207        TEST NO. 7          DATE  7/19/73
VEHICLE MODEL  IHC 1200                  ENGINE   266 CID *              MFGR. CODE  270                YR.  1
                                                                         CURB WT.  5900                 GVW  R

BAROMETER  29.54 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                             WET BULB TEMP 60.0 DEG. F
REL. HUMIDITY     35 PCT.                                               ABS. HUMIDITY 49.8 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                     1              2
     FINAL WT.,   GRAMS                        248.84         250.29
     INITIAL WT., GRAMS                        248.60         250.25
     DIFFERENCE   GRAMS                           .24            .04

     TOTAL EVAPORATIVE EMISSIONS                                                 .28 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  18.0 IN. H2O                               BLOWER INLET PRESS., G1  18.0 IN. H2O
                                                                         BLOWER INLET TEMP.  108 DEG. F
     BAG RESULTS
     BAG NO.                                        1              2              3
     BLOWER REVOLUTIONS                         39346          55805          33224
     HC   SAMPLE  METER READING/SCALE            19.8/4         12.3/4         17.5/4
     HC   SAMPLE  PPM                          1980           1230           1750
     HC   BACKGRD METER READING/SCALE             2.9/3          3.2/3          2.9/3
     HC   BACKGRD PPM                            29             32             29
     CO   SAMPLE  METER READING/SCALE            55.8/1         47.9/1         55.8/1
     CO   SAMPLE  PPM                          7608           5866           7608
     CO   BACKGRD METER READING/SCALE              .1/1          0.0/1          0.0/1
     CO   BACKGRD PPM                             8              0              0
     CO2  SAMPLE  METER READING/SCALE            76.3/2         75.1/3         76.0/2
     CO2  SAMPLE  PERCENT                         2.32           1.30           2.31
     CO2  BACKGRD METER READING/SCALE             2.9/3          2.7/3          2.9/3
     CO2  BACKGRD PERCENT                          .04            .04            .04
     NOX  SAMPLE  METER READING/SCALE            71.0/3         33.9/3         86.7/3
     NOX  SAMPLE  PPM                           213.0          101.7          260.1
     NOX  BACKGRD METER READING/SCALE              .2/3          1.3/3           .6/3
     NOX  BACKGRD PPM                              .6            3.9            1.8

     HC   CONCENTRATION PPM                    1958           1203           1728
     CO   CONCENTRATION PPM                    7177           5654           7184
     CO2  CONCENTRATION PCT                       2.29           1.26           2.28
     NOX  CONCENTRATION PPM                     212.5           98.4          258.7
     HC   MASS GRAMS                             85.74          74.70          63.89
     CO   MASS GRAMS                            634.96         708.93         536.29
     CO2  MASS GRAMS                           3194.65        2501.06        2684.30
     NOX  MASS GRAMS                             27.60          18.12          28.37

     WEIGHTED MASS HC     19.73 GRAMS/MILE
     WEIGHTED MASS CO    171.66 GRAMS/MILE
     WEIGHTED MASS CO2   720.64 GRAMS/MILE
     WEIGHTED MASS NOX     6.16 GRAMS/MILE
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                         TABLE  A-17.              VEHICLE EMISSION RESULTS
                                            PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  20H          TEST NO. 1           DATE  2/20/73
VEHICLE MODEL  1210 IHC                     ENGINE   304 CID 8                     MFGR. CODE  270                  YR.  1972
                                                                                   CURB WT.  4710                   GVW  7500

BAROMETER  29.58 IN.HG.
DRY BULB TEMP.  76.0 DEG. F                                                WET BULB TEMP 59.0 DEG. F
REL. HUMIDITY      34 PCT.                                                 ABS. HUMIDITY 47.1 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                        1              2
     FINAL WT.,   GRAMS                         253.14         251.50
     INITIAL WT., GRAMS                         251.88         250.08
     DIFFERENCE   GRAMS                           1.26           1.42

     TOTAL EVAPORATIVE EMISSIONS
                                                                          2.68 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.8 IN. H2O                               BLOWER INLET PRESS., G1  17.8 IN. H2O
                                                                         BLOWER INLET TEMP.  106 DEG. F
     BAG RESULTS
     BAG NO.                                         1              2              3
     BLOWER REVOLUTIONS                          34376          55765          33144
     HC    SAMPLE  METER READING/SCALE          53.5/3         29.3/3         42.3/3
     HC    SAMPLE  PPM                             535            293            423
     HC    BACKGRD METER READING/SCALE           2.3/3          2.6/3          1.8/3
     HC    BACKGRD PPM                              23             26             18
     CO    SAMPLE  METER READING/SCALE          63.9/2         39.2/2         41.8/2
     CO    SAMPLE  PPM                            2362           1293           1394
     CO    BACKGRD METER READING/SCALE            .1/1          0.0/1            .1/1
     CO    BACKGRD PPM                               8              0              8
     CO2   SAMPLE  METER READING/SCALE          73.7/2         74.8/3         70.3/2
     CO2   SAMPLE  PERCENT                        2.22           1.29           2.10
     CO2   BACKGRD METER READING/SCALE           3.0/3          3.0/3          3.9/3
     CO2   BACKGRD PERCENT                         .04            .04            .06
     NOX   SAMPLE  METER READING/SCALE          33.7/4         48.5/3         35.6/4
     NOX   SAMPLE  PPM                           337.0          145.5          356.0
     NOX   BACKGRD METER READING/SCALE            .1/3          2.2/3           .7/3
     NOX   BACKGRD PPM                              .3            6.6            2.1

     HC    CONCENTRATION PPM                       516            270            408
     CO    CONCENTRATION PPM                      2229           1246           1316
     CO2   CONCENTRATION PCT                      2.19           1.25           2.05
     NOX   CONCENTRATION PPM                     336.8          139.6          354.3
     HC    MASS GRAMS                            19.87          16.84          15.14
     CO    MASS GRAMS                           173.16         157.08          98.60
     CO2   MASS GRAMS                          2685.36        2490.69        2429.34
     NOX   MASS GRAMS                            38.00          25.55          38.54

     WEIGHTED MASS HC       4.54 GRAMS/MILE
     WEIGHTED MASS CO      38.37 GRAMS/MILE
     WEIGHTED MASS CO2    670.68 GRAMS/MILE
     WEIGHTED MASS NOX      8.51 GRAMS/MILE
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                              TABLE  A-18.           VEHICLE EMISSION RESULTS
                                                 PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  208          TEST NO. 2
VEHICLE MODEL  1210 IHC                DATE  2/21/73
                                       ENGINE   304 CID 8             MFGR. CODE  270                YR.  1972
                                                                      CURB WT.  4710                 GVW  7500
BAROMETER  29.55 IN.HG.
DRY BULB TEMP.  76.0 DEG. F                                         WET BULB TEMP 60.0 DEG. F
REL. HUMIDITY     37 PCT.                                           ABS. HUMIDITY 51.5 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                  1              2
     FINAL WT.,    GRAMS                    251.78         250.63
     INITIAL WT.,  GRAMS                    251.28         249.99
     DIFFERENCE    GRAMS                      .50            .64

     TOTAL EVAPORATIVE EMISSIONS                                           1.14 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H20                          BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                    BLOWER INLET TEMP.  108 DEG. F
     BAG RESULTS
     BAG NO.                                   1              2              3
     BLOWER REVOLUTIONS                      33221          55791          33247
     HC   SAMPLE  METER READING/SCALE         59.8/3         31.6/3         45.2/3
     HC   SAMPLE  PPM                        598            316            452
     HC   BACKGRD METER READING/SCALE          2.6/3          2.6/3          2.0/3
     HC   BACKGRD PPM                         26             26             20
     CO   SAMPLE  METER READING/SCALE         74.6/2         45.0/2         44.8/2
     CO   SAMPLE  PPM                       2910           1523           1514
     CO   BACKGRD METER READING/SCALE          .1/2           .3/2          0.0/2
     CO   BACKGRD PPM                          3              8              0
     CO2  SAMPLE  METER READING/SCALE         78.1/2         75.9/3         70.4/2
     CO2  SAMPLE  PERCENT                      2.39           1.31           2.10
     CO2  BACKGRD METER READING/SCALE          2.4/3          2.6/3          2.6/3
     CO2  BACKGRD PERCENT                       .03            .04            .04
     NOX  SAMPLE  METER READING/SCALE         33.8/4         46.2/3         35.7/4
     NOX  SAMPLE  PPM                        338.0          138.6          357.0
     NOX  BACKGRD METER READING/SCALE          0.0/3          2.1/3           .9/3
     NOX  BACKGRD PPM                          0.0            6.3            2.7

     HC   CONCENTRATION PPM                  577            293            435
     CO   CONCENTRATION PPM                 2739           1458           1435
     CO2  CONCENTRATION PCT                    2.36           1.28           2.07
     NOX  CONCENTRATION PPM                  338.0          133.0          354.8
     HC   MASS GRAMS                          21.40          18.23          16.15
     CO   MASS GRAMS                         205.00         183.29         107.47
     CO2  MASS GRAMS                        2789.06        2539.89        2451.93
     NOX  MASS GRAMS                          37.42          24.73          39.30

     WEIGHTED MASS HC        4.89 GRAMS/MILE
     WEIGHTED MASS CO       44.34 GRAMS/MILE
     WEIGHTED MASS CO2     684.90 GRAMS/MILE
     WEIGHTED MASS NOX       8.43 GRAMS/MILE
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                    TABLE  A-19.            VEHICLE EMISSION RESULTS
                                      PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  208          TEST NO. 3         DATE  2/23/73                  MFGR. CODE  270
VEHICLE MODEL  1210 IHC                   ENGINE   392 CID 8             CURB WT.  4710

BAROMETER  29.27 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                          WET BULB TEMP 60.0 DEG. F
REL. HUMIDITY     32 PCT.                                            ABS. HUMIDITY 48.2 GRAINS/

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                           1             2
     INITIAL WT., GRAMS                       249.62        252.60
     DIFFERENCE   GRAMS                       249.38        252.30
                                                 .24           .30
     TOTAL EVAPORATIVE EMISSIONS
                                                                             .54 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.6 IN. H2O                           BLOWER INLET PRESS., G1  17.    . H2O
                                                                     BLOWER INLET TEMP.  110 DEG.
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                           1             2             3
     HC   SAMPLE  METER READING/SCALE         33175         55858         33244
     HC   SAMPLE  PPM                          58.3/3        27.7/3        44.3/3
     HC   BACKGRD METER READING/SCALE           583           277           443
     HC   BACKGRD PPM                           2.9/3         2.8/3         2.8/3
     CO   SAMPLE  METER READING/SCALE            29            28            28
     CO   SAMPLE  PPM                          88.8/2        52.0/2        69.0/2
     CO   BACKGRD METER READING/SCALE          3738          1816          2616
     CO   BACKGRD PPM                           .3/2          .3/2          .3/2
     CO2  SAMPLE  METER READING/SCALE             8             8             8
     CO2  SAMPLE  PERCENT                      83.6/2        85.2/3        74.8/2
     CO2  BACKGRD METER READING/SCALE          2.60          1.51          2.26
     CO2  BACKGRD PERCENT                       4.5/3         4.3/3         3.7/3
     NOX  SAMPLE  METER READING/SCALE           .07           .06           .05
     NOX  SAMPLE  PPM                          71.1/3        26.7/3        70.3/3
     NOX  BACKGRD METER READING/SCALE         213.3          80.1         210.9
     NOX  BACKGRD PPM                            .5/3         2.1/3         1.2/3
                                                1.5           6.3           3.6
     HC   CONCENTRATION PPM
     CO   CONCENTRATION PPM                     561           253           420
     CO2  CONCENTRATION PCT                    3506          1737          2468
     NOX  CONCENTRATION PPM                    2.55          1.46          2.22
     HC   MASS GRAMS                          212.1          74.6         208.0
     CO   MASS GRAMS                          20.46         15.53         15.38
     CO2  MASS GRAMS                         258.39        215.58        182.26
     NOX  MASS GRAMS                        2964.90       2857.78       2590.60
                                              22.81         13.51         22.41
     WEIGHTED MASS HC       4.41 GRAMS/MILE
     WEIGHTED MASS CO      57.41 GRAMS/MILE
     WEIGHTED MASS CO2    747.91 GRAMS/MILE
     WEIGHTED MASS NOX      4.81 GRAMS/MILE
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                    TABLE  A-20.          VEHICLE EMISSION RESULTS
                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  208         TEST NO. 4         DATE  2/24/73
VEHICLE MODEL  1210 IHC                  ENGINE   392 CID 8             MFGR. CODE  270                 YR.  1972
                                                                        CURB WT.  4710                  GVW  7500

BAROMETER  29.26 IN.HG.
DRY BULB TEMP.  75.0 DEG. F                                             WET BULB TEMP 59.0 DEG. F
REL. HUMIDITY     36 PCT.                                               ABS. HUMIDITY 48.7 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,    GRAMS                          1             2
     INITIAL WT., GRAMS                        251.38        250.80
     DIFFERENCE    GRAMS                       251.03        250.43
                                                  .35           .37
     TOTAL EVAPORATIVE EMISSIONS
                                                                      .72 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H20                              BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                        BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                            1             2             3
     HC    SAMPLE  METER READING/SCALE          33551         55932         33348
     HC    SAMPLE  PPM                           54.4/3        27.5/3        43.4/3
     HC    BACKGRD METER READING/SCALE          544           275           434
     HC    BACKGRD PPM                            3.1/3         3.1/3         2.7/3
     CO    SAMPLE  METER READING/SCALE           31            31            27
     CO    SAMPLE  PPM                           42.5/1        27.0/1        35.0/1
     CO    BACKGRD METER READING/SCALE          3774          2018          2849
     CO    BACKGRD PPM                             .4/1          .3/1          .2/1
     CO2   SAMPLE  METER READING/SCALE           24            18            12
     CO2   SAMPLE  PERCENT                       79.8/2        81.9/3        71.5/2
     CO2   BACKGRD METER READING/SCALE          2.45          1.44          2.14
     CO2   BACKGRD PERCENT                        2.7/3         2.6/3         2.2/3
     NOX   SAMPLE  METER READING/SCALE           .04           .04           .03
     NOX   SAMPLE  PPM                           77.3/3        30.5/3        81.6/3
     NOX   BACKGRD METER READING/SCALE         231.9          91.5         244.8
     NOX   BACKGRD PPM                             .4/3         2.8/3         1.5/3
                                                  1.2           8.4           4.5
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                    520           248           412
     CO2   CONCENTRATION PCT                   3534          1923          2689
     NOX   CONCENTRATION PPM                   2.42          1.41          2.12
     HC    MASS GRAMS                          231.0          84.1         241.1
     CO    MASS GRAMS                          19.19         15.26         15.12
     CO2   MASS GRAMS                         263.43        239.02        199.21
     NOX   MASS GRAMS                        2850.19       2762.59       2478.13
                                               25.17         15.29         26.12
     WEIGHTED MASS HC       4.28 GRAMS/MILE
     WEIGHTED MASS CO      62.11 GRAMS/MILE
     WEIGHTED MASS CO2    720.09 GRAMS/MILE
     WEIGHTED MASS NOX      5.47 GRAMS/MILE
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                  TABLE  A-21.             VEHICLE EMISSION RESULTS
                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  204        TEST NO. 1          DATE  2/21/73                  MFGR. CODE   31                YR.  1973
VEHICLE MODEL  ECONOLINE-300             ENGINE    302 CID 8            CURB WT.  4260                GVW  7000

BAROMETER  24.58 IN.HG.                                                 WET BULB TEMP 60.0 DEG. F
DRY BULB TEMP.  75.0 DEG. F                                             ABS. HUMIDITY 53.1 GRAINS/LB
REL. HUMIDITY      40 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                  1             2
     FINAL WT.,   GRAMS                   250.39        248.96
     INITIAL WT., GRAMS                   250.10        248.71
     DIFFERENCE   GRAMS                      .29           .25

     TOTAL EVAPORATIVE EMISSIONS                                          .54 GRAMS


EXHAUST EMISSIONS

                                                                        BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                              BLOWER INLET TEMP.  112 DEG. F

     BAG RESULTS
     BAG NO.                                    1             2             3
     BLOWER REVOLUTIONS                     33202         55805         32528
     HC    SAMPLE  METER READING/SCALE     80.8/3        37.1/3        58.8/3
     HC    SAMPLE  PPM                       808           371           588
     HC    BACKGRD METER READING/SCALE      2.4/3         3.9/3         2.3/3
     HC    BACKGRD PPM                        24            39            23
     CO    SAMPLE  METER READING/SCALE     43.4/1        37.1/2        43.2/2
     CO    SAMPLE  PPM                      3897          1212          1450
     CO    BACKGRD METER READING/SCALE       .9/2         1.3/2          .6/2
     CO    BACKGRD PPM                        25            37            17
     CO2   SAMPLE  METER READING/SCALE     65.4/2        78.4/3        63.7/2
     CO2   SAMPLE  PERCENT                  1.93          1.37          1.87
     CO2   BACKGRD METER READING/SCALE      3.9/3         4.8/3         3.6/3
     CO2   BACKGRD PERCENT                   .06           .07           .05
     NOX   SAMPLE  METER READING/SCALE     36.5/3        23.3/3        70.5/3
     NOX   SAMPLE  PPM                     109.5          69.9         211.5
     NOX   BACKGRD METER READING/SCALE      1.1/3         1.0/3          .8/3
     NOX   BACKGRD PPM                       3.3           3.0           2.4

     HC    CONCENTRATION PPM                 788           336           569
     CO    CONCENTRATION PPM                3681          1133          1365
     CO2   CONCENTRATION PCT                1.88          1.30          1.82
     NOX   CONCENTRATION PPM               106.8          67.2         209.5
     HC    MASS GRAMS                      29.03         20.82         20.51
     CO    MASS GRAMS                     273.73        141.56         99.44
     CO2   MASS GRAMS                    2207.88       2573.42       2097.76
     NOX   MASS GRAMS                      11.83         12.52         22.73

     WEIGHTED MASS HC       6.00 GRAMS/MILE
     WEIGHTED MASS CO      42.13 GRAMS/MILE
     WEIGHTED MASS CO2    624.14 GRAMS/MILE
     WEIGHTED MASS NOX      4.07 GRAMS/MILE
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                                  TABLE  A-22.          VEHICLE EMISSION RESULTS
                                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  204          TEST NO. 2            DATE  2/22/73
VEHICLE MODEL  ECONOLINE 300                 ENGINE   302 CID 8               MFGR. CODE   31                  YR.  1973
                                                                              CURB WT.  4260                   GVW  7000

BAROMETER  29.37 IN.HG.
DRY BULB TEMP.  79.0 DEG. F                                                 WET BULB TEMP 61.0 DEG. F
REL. HUMIDITY      33 PCT.                                                  ABS. HUMIDITY 51.1 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                              1                2
     INITIAL WT., GRAMS                         251.84           248.63
     DIFFERENCE   GRAMS                         251.44           248.30
                                                   .40              .33
     TOTAL EVAPORATIVE EMISSIONS
                                                                                 .73 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                               BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                         BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                                1                2                3
     HC     SAMPLE  METER READING/SCALE            33301            55540            33241
     HC     SAMPLE  PPM                             66.1/3           36.3/3           55.5/3
     HC     BACKGRD METER READING/SCALE             661              363              555
     HC     BACKGRD PPM                              2.6/3            2.5/3            2.4/3
     CO     SAMPLE  METER READING/SCALE              26               25               24
     CO     SAMPLE  PPM                             77.8/2           28.5/2           45.2/2
     CO     BACKGRD METER READING/SCALE             3086              898             1531
     CO     BACKGRD PPM                               .4/2             .6/2             .5/2
     CO2    SAMPLE  METER READING/SCALE              11               17               14
     CO2    SAMPLE  PERCENT                         64.7/2           76.3/3           66.2/2
     CO2    BACKGRD METER READING/SCALE             1.90             1.32             1.95
     CO2    BACKGRD PERCENT                          3.4/3            3.0/3            3.0/3
     NOX    SAMPLE  METER READING/SCALE              .05              .04              .04
     NOX    SAMPLE  PPM                             60.8/3           32.9/3           77.2/3
     NOX    BACKGRD METER READING/SCALE            182.4             48.7            231.6
     NOX    BACKGRD PPM                               .4/3            1.2/3             .9/3
                                                    1.2              3.6              2.7
     HC     CONCENTRATION PPM
     CO     CONCENTRATION PPM                        639              341              535
     CO2    CONCENTRATION PCT                       2930              850             1445
     NOX    CONCENTRATION PPM                       1.86             1.28             1.92
     HC     MASS GRAMS                             181.4             95.5            229.3
     CO     MASS GRAMS                             23.52            20.91            19.64
     CO2    MASS GRAMS                            217.68           105.36           107.14
     NOX    MASS GRAMS                           2183.62          2509.54          2246.36
                                                   19.90            17.47            25.11
     WEIGHTED MASS HC       5.63 GRAMS/MILE
     WEIGHTED MASS CO      34.67 GRAMS/MILE
     WEIGHTED MASS CO2    636.52 GRAMS/MILE
     WEIGHTED MASS NOX      5.36 GRAMS/MILE
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TABLE A-23. VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

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UNIT NO.  209        TEST NO. 3          DATE  2/23/73                  MFGR. CODE   31                YR.  1973
VEHICLE MODEL  ECONOLINE 300             ENGINE   302 CID 8             CURB WT.  4260                 GVW  7000

BAROMETER  29.25 IN.HG.                                                WET BULB TEMP 59.0 DEG. F
DRY BULB TEMP.  74.0 DEG. F                                            ABS. HUMIDITY 50.4 GRAINS/LB
REL. HUMIDITY     38 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                      1          2
     FINAL WT.,   GRAMS                       250.87     251.32
     INITIAL WT., GRAMS                       250.62     251.27
     DIFFERENCE   GRAMS                          .25        .05

     TOTAL EVAPORATIVE EMISSIONS                                    .30 GRAMS

EXHAUST EMISSIONS

                                                                   BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                         BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                       1          2          3
     BLOWER REVOLUTIONS                        33739      56018      33719
     HC   SAMPLE  METER READING/SCALE           58.4/3     36.7/3     51.5/3
     HC   SAMPLE  PPM                           584        367        515
     HC   BACKGRD METER READING/SCALE           1.8/3      2.1/3      2.4/3
     HC   BACKGRD PPM                           18         21         24
     CO   SAMPLE  METER READING/SCALE           59.9/2     19.3/2     35.1/2
     CO   SAMPLE  PPM                           2172       586        1137
     CO   BACKGRD METER READING/SCALE           .1/2       .3/2       0.0/2
     CO   BACKGRD PPM                           3          8          0
     CO2  SAMPLE  METER READING/SCALE           73.2/2     88.6/3     70.8/2
     CO2  SAMPLE  PERCENT                      2.21       1.59       2.12
     CO2  BACKGRD METER READING/SCALE           3.1/3      1.3/3      1.9/3
     CO2  BACKGRD PERCENT                       .04        .02        .03
     NOX  SAMPLE  METER READING/SCALE           46.0/3     25.2/3     56.6/3
     NOX  SAMPLE  PPM                          138.0       75.6      169.8
     NOX  BACKGRD METER READING/SCALE           .1/3       .4/3       .6/3
     NOX  BACKGRD PPM                           .3        1.2        1.8

     HC   CONCENTRATION PPM                     569        349        495
     CO   CONCENTRATION PPM                    2050        553       1077
     CO2  CONCENTRATION PCT                    2.17       1.57       2.10
     NOX  CONCENTRATION PPM                   137.8       74.6      168.3
     HC   MASS GRAMS                          21.13      21.48      18.36
     CO   MASS GRAMS                         153.64      68.82      80.63
     CO2  MASS GRAMS                        2566.94    3088.17    2478.63
     NOX  MASS GRAMS                          15.20      13.66      18.56

     WEIGHTED MASS HC       5.47 GRAMS/MILE
     WEIGHTED MASS CO      24.11 GRAMS/MILE
     WEIGHTED MASS CO2    747.30 GRAMS/MILE
     WEIGHTED MASS NOX      4.10 GRAMS/MILE
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TABLE A-24.            VEHICLE EMISSION RESULTS
                  PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  204        TEST NO. 4        DATE  6/26/73                 MFGR. CODE   31                    YR.  1973
VEHICLE MODEL  ECONOLINE 300           ENGINE   302 CID 8            CURB WT.  4260                     GVW  7000

BAROMETER  29.43 IN.HG.
DRY BULB TEMP.  79.0 DEG. F                                          WET BULB TEMP 65.0 DEG. F
REL. HUMIDITY     46 PCT.                                            ABS. HUMIDITY 69.8 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                   1             2
     FINAL WT.,   GRAMS                      253.51        252.88
     INITIAL WT., GRAMS                      253.00        252.74
     DIFFERENCE   GRAMS                         .51           .14

     TOTAL EVAPORATIVE EMISSIONS                                          .65 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                        BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                  BLOWER INLET TEMP.  112 DEG. F
     BAG RESULTS
     BAG NO.                                    1             2             3
     BLOWER REVOLUTIONS                      33445         55725         33297
     HC   SAMPLE  METER READING/SCALE        58.4/3        33.4/3        54.5/3
     HC   SAMPLE  PPM                         584           334           545
     HC   BACKGRD METER READING/SCALE         2.6/3         3.6/3         3.0/3
     HC   BACKGRD PPM                          26            36            30
     CO   SAMPLE  METER READING/SCALE        39.0/1        15.0/1        26.5/1
     CO   SAMPLE  PPM                        3322           999          1971
     CO   BACKGRD METER READING/SCALE          .1/1          .2/1          0.0/1
     CO   BACKGRD PPM                           6            12             0
     CO2  SAMPLE  METER READING/SCALE        63.7/2        81.8/3        67.6/2
     CO2  SAMPLE  PERCENT                    1.87          1.44          2.00
     CO2  BACKGRD METER READING/SCALE         2.1/3         2.8/3         3.6/3
     CO2  BACKGRD PERCENT                     .03           .04           .05
     NOX  SAMPLE  METER READING/SCALE        36.6/3        21.3/3        44.4/3
     NOX  SAMPLE  PPM                       109.8          63.9         133.2
     NOX  BACKGRD METER READING/SCALE         1.1/3         1.5/3         1.2/3
     NOX  BACKGRD PPM                         3.3           4.5           3.6

     HC   CONCENTRATION PPM                   562           302           520
     CO   CONCENTRATION PPM                  3149           946          1866
     CO2  CONCENTRATION PCT                  1.84          1.40          1.96
     NOX  CONCENTRATION PPM                 107.1          59.9         130.2
     HC   MASS GRAMS                        20.75         18.58         19.10
     CO   MASS GRAMS                       234.60        117.44        138.37
     CO2  MASS GRAMS                      2167.58       2244.64       2296.73
     NOX  MASS GRAMS                        12.79         11.93         15.49

     WEIGHTED MASS HC       5.12 GRAMS/MILE
     WEIGHTED MASS CO      39.63 GRAMS/MILE
     WEIGHTED MASS CO2    665.44 GRAMS/MILE
     WEIGHTED MASS NOX      3.50 GRAMS/MILE
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                         TABLE A-25.            VEHICLE EMISSION RESULTS
                                             PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  210         TEST NO. 1            DATE  2/23/73                  MFGR. CODE   43                   YR.  1970
VEHICLE MODEL  C/30                         ENGINE   292 CID 6             CURB WT.  4990                    GVW  8000

BAROMETER  29.29 IN.HG.                                              WET BULB TEMP 60.0 DEG. F
DRY BULB TEMP.  80.0 DEG. F                                          ABS. HUMIDITY 45.0 GRAINS/LB
REL. HUMIDITY      28 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                    1              2
     FINAL WT.,    GRAMS                     251.51         252.41
     INITIAL WT., GRAMS                      250.50         252.30
     DIFFERENCE    GRAMS                       1.01            .11

     TOTAL EVAPORATIVE EMISSIONS                                          1.12 GRAMS

EXHAUST EMISSIONS

                                                                     BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2.  17.5 IN. H2O                           BLOWER INLET TEMP.  112 DEG. F

     BAG RESULTS
     BAG NO.                                     1              2              3
     BLOWER REVOLUTIONS                      33777          55872          33200
     HC    SAMPLE  METER READING/SCALE        87.9/3         51.8/3         61.9/3
     HC    SAMPLE  PPM                        879            518            619
     HC    BACKGRD METER READING/SCALE         2.2/3          4.6/3          4.3/3
     HC    BACKGRD PPM                        22             46             43
     CO    SAMPLE  METER READING/SCALE        49.3/1         61.9/2         81.1/2
     CO    SAMPLE  PPM                        4772           2266           3273
     CO    BACKGRD METER READING/SCALE          .5/2           .5/2           .2/2
     CO    BACKGRD PPM                        14             14              6
     CO2   SAMPLE  METER READING/SCALE        73.9/2         78.5/3         71.0/2
     CO2   SAMPLE  PERCENT                    2.23           1.37           2.13
     CO2   BACKGRD METER READING/SCALE         3.0/3          3.8/3          3.2/3
     CO2   BACKGRD PERCENT                     .04            .05            .05
     NOX   SAMPLE  METER READING/SCALE        92.4/3         48.8/3         31.3/4
     NOX   SAMPLE  PPM                       277.2          146.4          313.0
     NOX   BACKGRD METER READING/SCALE         1.5/3          3.0/3          1.4/3
     NOX   BACKGRD PPM                         4.5            9.0            4.2

     HC    CONCENTRATION PPM                  862            478            584
     CO    CONCENTRATION PPM                  4512           2173           3105
     CO2   CONCENTRATION PCT                  2.20           1.32           2.09
     NOX   CONCENTRATION PPM                 273.6          138.5          309.6
     HC    MASS GRAMS                         31.95          29.30          21.29
     CO    MASS GRAMS                        337.81         269.14         228.50
     CO2   MASS GRAMS                       2597.39        2580.51        2426.54
     NOX   MASS GRAMS                         29.49          24.69          32.80

     WEIGHTED MASS HC        7.36 GRAMS/MILE
     WEIGHTED MASS CO       72.62 GRAMS/MILE
     WEIGHTED MASS CO2     677.40 GRAMS/MILE
     WEIGHTED MASS NOX       7.48 GRAMS/MILE
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TABLE A-26. VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO. 210 TEST NO. 2
VEHICLE MODEL C/30
DATE 2/24/73
ENGINE 292 CID 6
MFGR. CODE 43
CURB WT. 4990
YR. 1970
GVW 8000

BAROMETER 24.27 IN.HG.
DRY BULB TEMP. 76.0 DEG. F
REL. HUMIDITY 34 PCT.
WET BULB TEMP 59.0 DEG. F
ABS. HUMIDITY 47.1 GRAINS/LB

EVAPORATIVE EMISSIONS

CANISTER	1	2
FINAL WT., GRAMS	244.93	251.94
INITIAL WT., GRAMS	244.74	251.78
DIFFERENCE GRAMS	.19	.16

TOTAL EVAPORATIVE EMISSIONS .35 GRAMS

EXHAUST EMISSIONS

BLOWER DIF. PRESS., G2, 17.5 IN. H2O
BLOWER INLET PRESS., G1 17.5 IN. H2O
BLOWER INLET TEMP. 110 DEG. F

BAG RESULTS

BAG NO.	1	2	3
BLOWER REVOLUTIONS	33256	55913	33119
HC SAMPLE METER READING/SCALE	85.3/3	44.5/3	60.4/3
HC SAMPLE PPM	853	445	604
HC BACKGRD METER READING/SCALE	2.7/3	2.2/3	2.5/3
HC BACKGRD PPM	27	22	25
CO SAMPLE METER READING/SCALE	55.5/1	29.5/1	44.0/1
CO SAMPLE PPM	5652	2263	3980
CO BACKGRD METER READING/SCALE	.5/1	.3/1	.3/1
CO BACKGRD PPM	29	18	18
CO2 SAMPLE METER READING/SCALE	69.6/2	72.9/3	69.1/2
CO2 SAMPLE PERCENT	2.08	1.25	2.06
CO2 BACKGRD METER READING/SCALE	3.5/3	2.7/3	3.3/3
CO2 BACKGRD PERCENT	.05	.04	.05
NOX SAMPLE METER READING/SCALE	87.7/3	42.3/3	94.7/3
NOX SAMPLE PPM	263.1	126.9	284.1
NOX BACKGRD METER READING/SCALE	1.5/2	1.6/2	1.6/2
NOX BACKGRD PPM	1.5	1.6	1.6
HC CONCENTRATION PPM	831	425	584
CO CONCENTRATION PPM	5531	2168	3765
CO2 CONCENTRATION PCT	2.03	1.22	2.02
NOX CONCENTRATION PPM	261.9	125.5	282.8
HC MASS GRAMS	30.44	26.19	21.28
CO MASS GRAMS	408.86	269.44	277.13
CO2 MASS GRAMS	2375.47	2386.90	2346.69
NOX MASS GRAMS	28.12	22.65	30.23

WEIGHTED MASS HC	6.85 GRAMS/MILE
WEIGHTED MASS CO	80.43 GRAMS/MILE
WEIGHTED MASS CO2	632.29 GRAMS/MILE
WEIGHTED MASS NOX	6.94 GRAMS/MILE

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                            TABLE A-27              VEHICLE EMISSION RESULTS
                                              PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  211          TEST NO. 1           DATE  2/23/73                    MFGR. CODE   43              YR.  1970
VEHICLE MODEL  C/20                         ENGINE   250 CID 6               CURB WT.  5990               GVW  6200

BAROMETER  29.28 IN.HG.
DRY BULB TEMP.  79.0 DEG. F                                            WET BULB TEMP 60.0 DEG. F
REL. HUMIDITY      30 PCT.                                             ABS. HUMIDITY 46.6 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                        1            2
     FINAL WT.,    GRAMS                        251.02       259.56
     INITIAL WT., GRAMS                         250.08       259.24
     DIFFERENCE    GRAMS                           .94          .32

     TOTAL EVAPORATIVE EMISSIONS
                                                                            1.26 GRAMS

EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.6 IN. H2O                             BLOWER INLET PRESS., G1  17.6 IN. H2O
                                                                       BLOWER INLET TEMP.  112 DEG. F
     BAG RESULTS
     BAG NO.                                          1            2            3
     BLOWER REVOLUTIONS                           33903        55907        33100
     HC    SAMPLE  METER READING/SCALE           99.9/3       37.6/3       58.9/3
     HC    SAMPLE  PPM                             949          376          584
     HC    BACKGRD METER READING/SCALE            3.7/3        3.6/3        2.9/3
     HC    BACKGRD PPM                               37           36           29
     CO    SAMPLE  METER READING/SCALE           51.0/1       69.3/2       52.8/1
     CO    SAMPLE  PPM                             5050         2381         5359
     CO    BACKGRD METER READING/SCALE             .1/2         .3/2         .1/2
     CO    BACKGRD PPM                                3            8            3
     CO2   SAMPLE  METER READING/SCALE           73.6/2       46.9/2       70.0/2
     CO2   SAMPLE  PERCENT                         2.22         1.30         2.09
     CO2   BACKGRD METER READING/SCALE            3.9/3        1.7/3        3.3/3
     CO2   BACKGRD PERCENT                          .05          .02          .05
     NOX   SAMPLE  METER READING/SCALE           90.2/3       75.0/3       89.6/3
     NOX   SAMPLE  PPM                            270.6        225.0        268.8
     NOX   BACKGRD METER READING/SCALE            1.0/3        2.5/3        1.7/3
     NOX   BACKGRD PPM                              3.0          7.5          5.1

     HC    CONCENTRATION PPM                        915          344          561
     CO    CONCENTRATION PPM                       4783         2291         5089
     CO2   CONCENTRATION PCT                       2.18         1.27         2.05
     NOX   CONCENTRATION PPM                      268.2        218.4        264.7
     HC    MASS GRAMS                             34.02        21.11        20.36
     CO    MASS GRAMS                            359.10       283.71       373.03
     CO2   MASS GRAMS                           2586.53      2493.05      2374.87
     NOX   MASS GRAMS                             29.14        34.19        28.12

     WEIGHTED MASS HC        6.31 GRAMS/MILE
     WEIGHTED MASS CO       86.77 GRAMS/MILE
     WEIGHTED MASS CO2     661.19 GRAMS/MILE
     WEIGHTED MASS NOX       9.04 GRAMS/MILE
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                         TABLE A-28.              VEHICLE EMISSION RESULTS
                                            PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  211          TEST NO. 2          DATE  2/24/73
VEHICLE MODEL  C/20                        ENGINE   250 CID 6          MFGR. CODE   93                   YR.  1970
                                                                       CURB WT.  5990                    GVW  6200

BAROMETER  29.25 IN.HG.
DRY BULB TEMP.  74.0 DEG. F                                            WET BULB TEMP 63.0 DEG. F
REL. HUMIDITY     52 PCT.                                              ABS. HUMIDITY 68.4 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                       1             2
     FINAL WT.,   GRAMS                         250.81        250.04
     INITIAL WT., GRAMS                         249.49        249.99
     DIFFERENCE   GRAMS                           1.32           .05

     TOTAL EVAPORATIVE EMISSIONS                                              1.37 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2.  17.5 IN. H2O                             BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                       BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                        1             2             3
     BLOWER REVOLUTIONS                         33580         55830         33050
     HC   SAMPLE  METER READING/SCALE          96.5/3        36.8/3        59.1/3
     HC   SAMPLE  PPM                             965           368           591
     HC   BACKGRD METER READING/SCALE           2.2/3         3.0/3         2.1/3
     HC   BACKGRD PPM                              22            30            21
     CO   SAMPLE  METER READING/SCALE          65.5/1        30.5/1        51.0/1
     CO   SAMPLE  PPM                            8069          2369          5050
     CO   BACKGRD METER READING/SCALE            .1/1          .1/1         0.0/1
     CO   BACKGRD PPM                               6             6             0
     CO2  SAMPLE  METER READING/SCALE          73.9/2        76.5/3        68.2/2
     CO2  SAMPLE  PERCENT                        2.21          1.33          2.03
     CO2  BACKGRD METER READING/SCALE           2.6/3         3.3/3         2.7/3
     CO2  BACKGRD PERCENT                         .04           .05           .04
     NOX  SAMPLE  METER READING/SCALE          80.6/3        49.2/3        88.9/3
     NOX  SAMPLE  PPM                           241.8         147.6         266.7
     NOX  BACKGRD METER READING/SCALE            .6/3         1.7/3         1.0/3
     NOX  BACKGRD PPM                             1.8           5.1           3.0

     HC   CONCENTRATION PPM                       948           342           574
     CO   CONCENTRATION PPM                      7585          2259          4760
     CO2  CONCENTRATION PCT                      2.18          1.28          1.99
     NOX  CONCENTRATION PPM                     240.4         143.1         264.3
     HC   MASS GRAMS                            35.02         20.98         20.87
     CO   MASS GRAMS                           565.25        280.15        350.91
     CO2  MASS GRAMS                          2572.90       2513.83       2311.90
     NOX  MASS GRAMS                            28.56         28.27         30.90

     WEIGHTED MASS HC       6.39 GRAMS/MILE
     WEIGHTED MASS CO      96.39 GRAMS/MILE
     WEIGHTED MASS CO2    658.33 GRAMS/MILE
     WEIGHTED MASS NOX      7.26 GRAMS/MILE
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                  TABLE  A-29.            VEHICLE EMISSION RESULTS
                                     PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  212         TEST NO. 1           DATE  2/27/73                    MFGR. CODE   22                 YR.  1970
VEHICLE MODEL  200                         ENGINE   318 CID 8               CURB WT.  4300                 GVW  7500

BAROMETER  29.46 IN.HG.                                                  WET BULB TEMP 62.0 DEG. F
DRY BULB TEMP.  78.0 DEG. F                                              ABS. HUMIDITY 57.2 GRAINS/LB
REL. HUMIDITY      39 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                     1              2
     FINAL WT.,    GRAMS                       252.24         252.99
     INITIAL WT., GRAMS                        252.10         252.95
     DIFFERENCE   GRAMS                           .14            .04

     TOTAL EVAPORATIVE EMISSIONS                                              .18 GRAMS

EXHAUST EMISSIONS

                                                                         BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                               BLOWER INLET TEMP.  112 DEG. F

     BAG RESULTS
     BAG NO.                                      1              2              3
     BLOWER REVOLUTIONS                        38912          55826          33294
     HC    SAMPLE  METER READING/SCALE        77.2/3         29.0/3         53.6/3
     HC    SAMPLE  PPM                          772            290            536
     HC    BACKGRD METER READING/SCALE         2.8/3          3.1/3          2.9/3
     HC    BACKGRD PPM                           28             31             29
     CO    SAMPLE  METER READING/SCALE        56.1/2         26.8/2         59.0/2
     CO    SAMPLE  PPM                         1997            838           2130
     CO    BACKGRD METER READING/SCALE          .3/2           .1/2          0.0/2
     CO    BACKGRD PPM                            8              3              0
     CO2   SAMPLE  METER READING/SCALE        85.6/3         75.6/3         63.9/2
     CO2   SAMPLE  PERCENT                     1.52           1.31           1.86
     CO2   BACKGRD METER READING/SCALE         4.5/3          4.5/3          4.5/3
     CO2   BACKGRD PERCENT                      .07            .07            .07
     NOX   SAMPLE  METER READING/SCALE        38.8/3         33.6/3         60.7/3
     NOX   SAMPLE  PPM                        116.4          100.8          182.1
     NOX   BACKGRD METER READING/SCALE         2.0/3          2.4/3          2.6/3
     NOX   BACKGRD PPM                          6.0            7.2            7.8

     HC    CONCENTRATION PPM                    748            262            512
     CO    CONCENTRATION PPM                   1907            804           2027
     CO2   CONCENTRATION PCT                   1.46           1.25           1.80
     NOX   CONCENTRATION PPM                  111.2           94.4          175.5
     HC    MASS GRAMS                         32.12          16.17          18.80
     CO    MASS GRAMS                        165.40         100.10         150.90
     CO2   MASS GRAMS                       2006.60        2453.48        2111.77
     NOX   MASS GRAMS                         14.62          17.80          19.74

     WEIGHTED MASS HC       5.43 GRAMS/MILE
     WEIGHTED MASS CO      34.26 GRAMS/MILE
     WEIGHTED MASS CO2    602.67 GRAMS/MILE
     WEIGHTED MASS NOX      4.71 GRAMS/MILE
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                              TABLE A-30.            VEHICLE EMISSION RESULTS
                                              PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  212         TEST NO. 2          DATE  2/28/73
VEHICLE MODEL  200                        ENGINE   318 CID 8               MFGR. CODE   22
                                                                           CURB WT.  4300                  YR.  1970
                                                                                                           GVW  7500
BAROMETER  29.36 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                             WET BULB TEMP 62.0 DEG. F
REL. HUMIDITY      38 PCT.                                              ABS. HUMIDITY 57.2 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                            1               2
     INITIAL WT., GRAMS                         246.46          253.37
     DIFFERENCE   GRAMS                         246.33          253.18
                                                   .13             .19
     TOTAL EVAPORATIVE EMISSIONS
                                                                                 .32 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H20                          BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                    BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                            1               2               3
     HC    SAMPLE  METER READING/SCALE          33346           55891           33230
     HC    SAMPLE  PPM                           91.9/3          31.5/3          58.8/3
     HC    BACKGRD METER READING/SCALE           919             315             588
     HC    BACKGRD PPM                            2.4/3           4.1/3           3.8/3
     CO    SAMPLE  METER READING/SCALE            24              41              38
     CO    SAMPLE  PPM                           72.7/2          33.4/2          63.3/2
     CO    BACKGRD METER READING/SCALE          2808            1074            2333
     CO    BACKGRD PPM                             .9/2           1.0/2            .4/2
     CO2   SAMPLE  METER READING/SCALE            25              28              11
     CO2   SAMPLE  PERCENT                       65.0/2          73.6/3          97.7/3
     CO2   BACKGRD METER READING/SCALE           1.91            1.27            1.80
     CO2   BACKGRD PERCENT                        2.9/3           3.0/3           2.5/3
     NOX   SAMPLE  METER READING/SCALE            .04             .04             .04
     NOX   SAMPLE  PPM                           60.0/3          38.3/3          73.7/3
     NOX   BACKGRD METER READING/SCALE          180.0           114.9           221.1
     NOX   BACKGRD PPM                             .1/3           1.0/3            .7/3
                                                  .3             3.0             2.1
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                     899             278             556
     CO2   CONCENTRATION PCT                    2649            1010            2214
     NOX   CONCENTRATION PPM                    1.88            1.23            1.77
     HC    MASS GRAMS                          179.8           112.2           219.3
     CO    MASS GRAMS                           33.11           17.18           20.40
     CO2   MASS GRAMS                          196.98          125.84          164.04
     NOX   MASS GRAMS                         2205.19         2413.70         2068.02
                                                20.26           21.20           24.64
     WEIGHTED MASS HC        5.74 GRAMS/MILE
     WEIGHTED MASS CO       40.54 GRAMS/MILE
     WEIGHTED MASS CO2     605.43 GRAMS/MILE
     WEIGHTED MASS NOX       5.86 GRAMS/MILE
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         TABLE A-31.                    VEHICLE EMISSION RESULTS
                                  PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  214        TEST NO. 1          DATE  2/22/73
VEHICLE MODEL  ECONOLINE 300             ENGINE   302 CID 8                 MFGR. CODE   31                 YR.  1972
                                                                            CURB WT.  4450                  GVW  7000

BAROMETER  29.45 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                      WET BULB TEMP 63.0 DEG. F
REL. HUMIDITY     42 PCT.                                        ABS. HUMIDITY 61.9 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                   1              2
     FINAL WT.,    GRAMS                   247.80         253.84
     INITIAL WT., GRAMS                    247.56         253.65
     DIFFERENCE   GRAMS                       .24            .19

     TOTAL EVAPORATIVE EMISSIONS
                                                                  .43 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H20                   BLOWER INLET PRESS., G1  17.5 IN. H20
                                                             BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                    1              2              3
     BLOWER REVOLUTIONS                     32249          55725          33118
     HC    SAMPLE  METER READING/SCALE     60.3/3         24.9/3         39.9/3
     HC    SAMPLE  PPM                        603            249            399
     HC    BACKGRD METER READING/SCALE      4.0/3          2.8/3          2.6/3
     HC    BACKGRD PPM                         40             28             26
     CO    SAMPLE  METER READING/SCALE     45.1/1         56.5/2         73.2/2
     CO    SAMPLE  PPM                       4135           2015           2835
     CO    BACKGRD METER READING/SCALE      0.0/2           .1/2           .2/2
     CO    BACKGRD PPM                          0              3              6
     CO2   SAMPLE  METER READING/SCALE     84.0/2         88.3/3         77.6/2
     CO2   SAMPLE  PERCENT                   2.61           1.59           2.37
     CO2   BACKGRD METER READING/SCALE      4.2/3          3.9/3          3.0/3
     CO2   BACKGRD PERCENT                    .06            .06            .04
     NOX   SAMPLE  METER READING/SCALE     49.4/3         25.2/3         57.5/3
     NOX   SAMPLE  PPM                      146.2           75.6          172.5
     NOX   BACKGRD METER READING/SCALE      2.3/3          2.0/3           .9/3
     NOX   BACKGRD PPM                        6.9            6.0            2.7

     HC    CONCENTRATION PPM                  572            225            378
     CO    CONCENTRATION PPM                 3972           1925           2663
     CO2   CONCENTRATION PCT                 2.57           1.53           2.33
     NOX   CONCENTRATION PPM                142.9           70.4          170.3
     HC    MASS GRAMS                       20.44          13.88          13.88
     CO    MASS GRAMS                      279.31         239.91         197.29
     CO2   MASS GRAMS                     2923.91        3016.90        2730.59
     NOX   MASS GRAMS                       15.95          13.58          19.53

     WEIGHTED MASS HC        4.08 GRAMS/MILE
     WEIGHTED MASS CO       62.99 GRAMS/MILE
     WEIGHTED MASS CO2     777.42 GRAMS/MILE
     WEIGHTED MASS NOX       4.21 GRAMS/MILE
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                      TABLE A-32.        VEHICLE EMISSION RESULTS
                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  213        TEST NO. 2        DATE  2/28/73              MFGR. CODE   31              YR.  1972
VEHICLE MODEL  ECONOLINE 300           ENGINE   302 CID 8         CURB WT.  4450              GVW  7000


BAROMETER  29.36 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                      WET BULB TEMP 62.0 DEG. F
REL. HUMIDITY     38 PCT.                                        ABS. HUMIDITY 57.2 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                               1          2
     FINAL WT.,    GRAMS                246.75     252.43
     INITIAL WT., GRAMS                 246.64     252.41
     DIFFERENCE    GRAMS                   .11        .02

     TOTAL EVAPORATIVE EMISSIONS                               .13 GRAMS


EXHAUST EMISSIONS

                                                                 BLOWER INLET PRESS., G1  17.5 IN. H20
     BLOWER DIF. PRESS., G2,  17.5 IN. H20                       BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                1          2          3
     BLOWER REVOLUTIONS                 32771      55693      33262
     HC    SAMPLE  METER READING/SCALE   67.4/3     26.6/3     44.2/3
     HC    SAMPLE  PPM                   674        266        442
     HC    BACKGRD METER READING/SCALE    4.0/3      3.9/3      3.5/3
     HC    BACKGRD PPM                    40         39         35
     CO    SAMPLE  METER READING/SCALE   55.1/1     58.1/2     84.6/2
     CO    SAMPLE  PPM                  5776       2088       3480
     CO    BACKGRD METER READING/SCALE    .1/2       .4/2       .6/2
     CO    BACKGRD PPM                     3         11         17
     CO2   SAMPLE  METER READING/SCALE   83.9/2     87.6/3     77.0/2
     CO2   SAMPLE  PERCENT               2.61       1.57       2.35
     CO2   BACKGRD METER READING/SCALE    3.1/3      4.2/3      4.0/3
     CO2   BACKGRD PERCENT                .04        .06        .06
     NOX   SAMPLE  METER READING/SCALE   49.9/3     24.6/3     52.9/3
     NOX   SAMPLE  PPM                  149.7       73.8      158.7
     NOX   BACKGRD METER READING/SCALE    .6/3      1.2/3      1.1/3
     NOX   BACKGRD PPM                    1.8        3.6        3.3

     HC    CONCENTRATION PPM              644        232        414
     CO    CONCENTRATION PPM             5412       1990       3266
     CO2   CONCENTRATION PCT             2.58       1.51       2.30
     NOX   CONCENTRATION PPM            148.3       70.7      156.1
     HC    MASS GRAMS                   23.29      14.28      15.21
     CO    MASS GRAMS                  395.51     247.11     242.25
     CO2   MASS GRAMS                 2972.11    2967.34    2693.95
     NOX   MASS GRAMS                   16.43      13.31      17.55

     WEIGHTED MASS HC       4.40 GRAMS/MILE
     WEIGHTED MASS CO      74.03 GRAMS/MILE
     WEIGHTED MASS CO2   770.79 GRAMS/MILE
     WEIGHTED MASS NOX      4.05 GRAMS/MILE
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                  TABLE A-33.          VEHICLE EMISSION RESULTS
                                 PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  214        TEST NO. 1          DATE  2/28/73                 MFGR. CODE   31              YR.  1972
VEHICLE MODEL  ECONOLINE 300             ENGINE   302 CID R            CURB WT.  4080              GVW  7000


BAROMETER  29.34 IN.HG.                                                WET BULB TEMP 63.0 DEG. F
DRY BULB TEMP.  72.0 DEG. F                                            ABS. HUMIDITY 63.5 GRAINS/LB
REL. HUMIDITY      44 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                         1               2
     FINAL WT.,    GRAMS                         252.73          252.76
     INITIAL WT., GRAMS                          252.69          252.51
     DIFFERENCE   GRAMS                             .04             .25

     TOTAL EVAPORATIVE EMISSIONS                                                .29 GRAMS


EXHAUST EMISSIONS
                                                                       BLOWER INLET PRESS., G1  17.5 IN. H20
     BLOWER DIF. PRESS., G2,  17.5 IN. H20                             BLOWER INLET TEMP.  112 DEG. F

     BAG RESULTS
     BAG NO.                                          1               2               3
     BLOWER REVOLUTIONS                           33395           55833           32784
     HC    SAMPLE  METER READING/SCALE           67.1/3          33.4/3          61.6/3
     HC    SAMPLE  PPM                              671             334             616
     HC    BACKGRD METER READING/SCALE            2.7/3           2.6/3           3.2/3
     HC    BACKGRD PPM                               27              26              32
     CO    SAMPLE  METER READING/SCALE           80.8/2          33.0/2          46.2/2
     CO    SAMPLE  PPM                             3256            1060            1572
     CO    BACKGRD METER READING/SCALE            1.1/2            .7/2            .5/2
     CO    BACKGRD PPM                               31              20              14
     CO2   SAMPLE  METER READING/SCALE           64.7/2          78.0/3          62.5/2
     CO2   SAMPLE  PERCENT                         1.90            1.36            1.83
     CO2   BACKGRD METER READING/SCALE            3.9/3           2.1/3           3.8/3
     CO2   BACKGRD PERCENT                          .06             .03             .05
     NOX   SAMPLE  METER READING/SCALE           39.3/3          19.3/3          45.4/3
     NOX   SAMPLE  PPM                            117.9            57.9           136.2
     NOX   BACKGRD METER READING/SCALE             .1/3            .4/3            .5/3
     NOX   BACKGRD PPM                               .3             1.2             1.5

     HC    CONCENTRATION PPM                        649             311             589
     CO    CONCENTRATION PPM                       3065             999            1482
     CO2   CONCENTRATION PCT                       1.86            1.33            1.78
     NOX   CONCENTRATION PPM                      117.7            56.8           134.9
     HC    MASS GRAMS                             23.82           19.09           21.23
     CO    MASS GRAMS                            227.29          123.91          107.89
     CO2   MASS GRAMS                           2172.74         2604.32         2045.78
     NOX   MASS GRAMS                             13.60           10.98           15.31

     WEIGHTED MASS HC        5.52 GRAMS/MILE
     WEIGHTED MASS CO       37.75 GRAMS/MILE
     WEIGHTED MASS CO2     627.29 GRAMS/MILE
     WEIGHTED MASS NOX       3.41 GRAMS/MILE
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                    TABLE A-34.          VEHICLE EMISSION RESULTS
                               PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  214        TEST NO. 2          DATE  3/ 1/73                  MFGR. CODE   31            YR.  1972
VEHICLE MODEL  ECONOLINE 300             ENGINE   302 CID 8             CURB WT.  4080             GVW  7000

BAROMETER  29.18 IN.HG.                                            WET BULB TEMP 66.0 DEG. F
DRY BULB TEMP.  79.0 DEG. F                                        ABS. HUMIDITY 74.8 GRAINS/LB
REL. HUMIDITY     48 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                     1             2
     FINAL WT.,   GRAMS                      253.69        249.93
     INITIAL WT., GRAMS                      253.20        249.81
     DIFFERENCE   GRAMS                         .49           .12

     TOTAL EVAPORATIVE EMISSIONS                                               .61 GRAMS


EXHAUST EMISSIONS

                                                                   BLOWER INLET PRESS., G1  17.8 IN. H2O
     BLOWER DIF. PRESS., G2,  17.8 IN. H2O                         BLOWER INLET TEMP.  112 DEG. F

     BAG RESULTS
     BAG NO.                                      1             2             3
     BLOWER REVOLUTIONS                       33201         55932         33254
     HC    SAMPLE  METER READING/SCALE       84.5/3        36.9/3        68.7/3
     HC    SAMPLE  PPM                         845           369           687
     HC    BACKGRD METER READING/SCALE        4.5/3         4.4/3         4.5/3
     HC    BACKGRD PPM                          45            44            45
     CO    SAMPLE  METER READING/SCALE       93.2/2        36.6/2        50.2/2
     CO    SAMPLE  PPM                        4022          1193          1739
     CO    BACKGRD METER READING/SCALE         .5/2          .4/2          .1/2
     CO    BACKGRD PPM                          14            11             3
     CO2   SAMPLE  METER READING/SCALE       67.6/2        77.0/3        63.7/2
     CO2   SAMPLE  PERCENT                     2.00          1.34          1.87
     CO2   BACKGRD METER READING/SCALE         .8/3         3.0/3         2.9/3
     CO2   BACKGRD PERCENT                      .01           .04           .04
     NOX   SAMPLE  METER READING/SCALE       39.8/3        20.0/3        45.4/3
     NOX   SAMPLE  PPM                       119.4          60.0         136.2
     NOX   BACKGRD METER READING/SCALE        0.0/3          .4/3          .4/3
     NOX   BACKGRD PPM                         0.0           1.2           1.2

     HC    CONCENTRATION PPM                   808           330           649
     CO    CONCENTRATION PPM                  3793          1134          1647
     CO2   CONCENTRATION PCT                  1.99          1.30          1.83
     NOX   CONCENTRATION PPM                 119.4          58.9         135.2
     HC    MASS GRAMS                        29.31         20.15         23.57
     CO    MASS GRAMS                       277.63        139.86        120.75
     CO2   MASS GRAMS                      2305.79       2526.81       2121.43
     NOX   MASS GRAMS                        14.34         11.93         16.27

     WEIGHTED MASS HC       6.16 GRAMS/MILE
     WEIGHTED MASS CO      43.74 GRAMS/MILE
     WEIGHTED MASS CO2    630.34 GRAMS/MILE
     WEIGHTED MASS NOX      3.65 GRAMS/MILE
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                         TABLE A-35.          VEHICLE EMISSION RESULTS
                                       PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  215        TEST NO. 1          DATE  3/ 1/73                  MFGR. CODE   46              YR.  1970
VEHICLE MODEL  2500                      ENGINE   292 CID 6             CURB WT.  4360               GVW  6200

BAROMETER  29.18 IN.HG.                                                WET BULB TEMP 66.0 DEG. F
DRY BULB TEMP.  79.0 DEG. F                                            ABS. HUMIDITY 74.8 GRAINS/LB
REL. HUMIDITY      48 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                      1           2
     FINAL WT.,    GRAMS                      247.69      252.52
     INITIAL WT.,  GRAMS                      247.53      252.45
     DIFFERENCE    GRAMS                         .16         .07

     TOTAL EVAPORATIVE EMISSIONS                                      .23 GRAMS


EXHAUST EMISSIONS

                                                                       BLOWER INLET PRESS., G1  17.7 IN. H2O
     BLOWER DIF. PRESS., G2,  17.7 IN. H2O                             BLOWER INLET TEMP.  112 DEG. F

     BAG RESULTS
     BAG NO.                                       1           2            3
     BLOWER REVOLUTIONS                        33429       55548        33217
     HC    SAMPLE  METER READING/SCALE        87.4/3      37.8/3       49.9/3
     HC    SAMPLE  PPM                           874         378          499
     HC    BACKGRD METER READING/SCALE         3.0/3       3.9/3        3.9/3
     HC    BACKGRD PPM                            30          39           39
     CO    SAMPLE  METER READING/SCALE        44.0/1      51.5/2       56.2/2
     CO    SAMPLE  PPM                          3980        1795         2002
     CO    BACKGRD METER READING/SCALE          .1/2        .4/2         .4/2
     CO    BACKGRD PPM                             3          11           11
     CO2   SAMPLE  METER READING/SCALE        62.1/2      70.9/3       63.4/2
     CO2   SAMPLE  PERCENT                      1.61        1.21         1.86
     CO2   BACKGRD METER READING/SCALE         2.7/3       2.6/3        2.9/3
     CO2   BACKGRD PERCENT                       .04         .04          .04
     NOX   SAMPLE  METER READING/SCALE        77.6/3      44.5/3       91.9/3
     NOX   SAMPLE  PPM                         232.8       133.5        275.7
     NOX   BACKGRD METER READING/SCALE          .5/3       1.5/3        1.1/3
     NOX   BACKGRD PPM                           1.5         4.5          3.3

     HC    CONCENTRATION PPM                     849         343          466
     CO    CONCENTRATION PPM                    3776        1715         1890
     CO2   CONCENTRATION PCT                    1.78        1.18         1.82
     NOX   CONCENTRATION PPM                   231.6       129.5        272.9
     HC    MASS GRAMS                          31.01       20.82        16.91
     CO    MASS GRAMS                         278.46      210.12       138.46
     CO2   MASS GRAMS                        2072.81     2276.08      2108.02
     NOX   MASS GRAMS                          28.02       26.04        32.82

     WEIGHTED MASS HC       5.84 GRAMS/MILE
     WEIGHTED MASS CO      54.50 GRAMS/MILE
     WEIGHTED MASS CO2    582.53 GRAMS/MILE
     WEIGHTED MASS NOX      7.57 GRAMS/MILE
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                          TABLE A-36.         VEHICLE EMISSION RESULTS
                                       PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  215        TEST NO. 2          DATE  3/ 2/73                 MFGR. CODE   46                 YR.  1970
VEHICLE MODEL  2500                      ENGINE   292 CID 6            CURB WT.  4360                 GVW  6200

                                                                      WET BULB TEMP 59.0 DEG. F
BAROMETER  29.14 IN.HG.                                               ABS. HUMIDITY 45.5 GRAINS/LB
DRY BULB TEMP.  77.0 DEG. F
REL. HUMIDITY      31 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                   1              2
     FINAL WT.,   GRAMS                      253.20         256.67
     INITIAL WT., GRAMS                      252.29         256.18
     DIFFERENCE   GRAMS                         .91            .49

     TOTAL EVAPORATIVE EMISSIONS                                        1.40 GRAMS


EXHAUST EMISSIONS
                                                                      BLOWER INLET PRESS., G1  17.8 IN. H2O
     BLOWER DIF. PRESS., G2,  17.8 IN. H2O                            BLOWER INLET TEMP.  112 DEG. F

     BAG RESULTS
     BAG NO.                                    1              2              3
     BLOWER REVOLUTIONS                       34151          56414          33414
     HC   SAMPLE  METER READING/SCALE          92.6/3         31.9/3         48.5/3
     HC   SAMPLE  PPM                          426            319            485
     HC   BACKGRD METER READING/SCALE            .2/3           .2/3          2.0/3
     HC   BACKGRD PPM                            2              2             20
     CO   SAMPLE  METER READING/SCALE          42.6/1         49.2/2         53.0/2
     CO   SAMPLE  PPM                         3788           1697           1860
     CO   BACKGRD METER READING/SCALE           1.7/2          1.3/2           .1/2
     CO   BACKGRD PPM                           48             37              3
     CO2  SAMPLE  METER READING/SCALE          65.2/2         72.4/3         62.8/2
     CO2  SAMPLE  PERCENT                      1.92           1.24           1.84
     CO2  BACKGRD METER READING/SCALE           4.0/3          2.1/3          2.6/3
     CO2  BACKGRD PERCENT                       .06            .03            .04
     NOX  SAMPLE  METER READING/SCALE          76.4/3         47.9/3         31.1/4
     NOX  SAMPLE  PPM                         224.2          143.7          311.0
     NOX  BACKGRD METER READING/SCALE            .4/3          2.5/3          1.3/3
     NOX  BACKGRD PPM                           1.2            7.5            3.9

     HC   CONCENTRATION PPM                    924            317            468
     CO   CONCENTRATION PPM                   3570           1606           1773
     CO2  CONCENTRATION PCT                   1.87           1.21           1.80
     NOX  CONCENTRATION PPM                  228.2          137.0          307.7
     HC   MASS GRAMS                          34.42          19.51          17.05
     CO   MASS GRAMS                         268.41         199.51         130.42
     CO2  MASS GRAMS                        2222.84        2380.03        2096.60
     NOX  MASS GRAMS                          24.75          24.55          32.65

     WEIGHTED MASS HC      5.87 GRAMS/MILE
     WEIGHTED MASS CO     51.90 GRAMS/MILE
     WEIGHTED MASS CO2   604.12 GRAMS/MILE
     WEIGHTED MASS NOX     7.17 GRAMS/MILE
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TABLE A-37.

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                                             VEHICLE EMISSION RESULTS
                                      PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  216         TEST NO. 1           DATE  3/ 6/73                  MFGR. CODE  720               YR.  1969
VEHICLE MODEL  D-27                        ENGINE    318 CID 8            CURB WT.  9820                GVW 12000

BAROMETER  26.87 IN.HG.                                                  WET BULB TEMP 62.0 DEG. F
DRY BULB TEMP.  79.0 DEG. F                                              ABS. HUMIDITY 55.6 GRAINS/LB
REL. HUMIDITY     33 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                    1              2              3
     FINAL WT.,   GRAMS                     246.64         252.54         256.64
     INITIAL WT., GRAMS                     246.45         252.44         256.41
     DIFFERENCE   GRAMS                        .19            .10            .23

     TOTAL EVAPORATIVE EMISSIONS                                         .52 GRAMS

EXHAUST EMISSIONS

                                                                         BLOWER INLET PRESS., G1  17.8 IN. H2O
     BLOWER DIF. PRESS., G2,  17.8 IN. H2O                               BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                     1              2              3
     BLOWER REVOLUTIONS                      33873          55863          32741
     HC   SAMPLE  METER READING/SCALE       10.2/4         39.3/3         55.2/3
     HC   SAMPLE  PPM                       1020            393            552
     HC   BACKGRD METER READING/SCALE        2.0/3          2.7/3          2.9/3
     HC   BACKGRD PPM                         20             27             29
     CO   SAMPLE  METER READING/SCALE       60.8/1         81.1/2         49.1/1
     CO   SAMPLE  PPM                       6941           3273           4740
     CO   BACKGRD METER READING/SCALE        2.4/2          2.5/2          1.4/2
     CO   BACKGRD PPM                         68             71             40
     CO2  SAMPLE  METER READING/SCALE       92.1/2         95.8/3         77.0/2
     CO2  SAMPLE  PERCENT                   2.94           1.75           2.35
     CO2  BACKGRD METER READING/SCALE        2.5/3          3.3/3          2.4/3
     CO2  BACKGRD PERCENT                    .04            .05            .03
     NOX  SAMPLE  METER READING/SCALE       97.0/3         48.9/3         76.4/3
     NOX  SAMPLE  PPM                      291.0          146.7          229.2
     NOX  BACKGRD METER READING/SCALE         .8/3          2.1/3           .5/3
     NOX  BACKGRD PPM                        2.4            6.3            1.5

     HC   CONCENTRATION PPM                 1006            370            529
     CO   CONCENTRATION PPM                 6426           3069           4444
     CO2  CONCENTRATION PCT                 2.91           1.71           2.32
     NOX  CONCENTRATION PPM                289.3          141.4          228.0
     HC   MASS GRAMS                       34.23          20.79          17.41
     CO   MASS GRAMS                      441.65         347.86         295.27
     CO2  MASS GRAMS                     3159.65        3066.19        2432.82
     NOX  MASS GRAMS                       29.93          24.13          22.81

     WEIGHTED MASS HC       6.06 GRAMS/MILF
     WEIGHTED MASS CO      94.14 GRAMS/MILE
     WEIGHTED MASS CO2    774.87 GRAMS/MILE
     WEIGHTED MASS NOX      6.67 GRAMS/MILE
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                    TABLE A 38.            VEHICLE EMISSION RESULTS
                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO. 216        TEST NO. 2          DATE   4/ 6/74              MFGR. CODE  720                YR.  1969
VEHICLE MODEL  D-22                     ENGINE    318 CID 8         CURB WT.  9820                 GVW 12000

BAROMETER  29.10 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                    WET BULB TEMP 57.0 DEG. F
REL. HUMIDITY      25 PCT.                                     ABS. HUMIDITY 37.0 GRAINS/LB

EVAPORATIVE EMISSIONS

    CANISTER                                   1               2               3
    FINAL WT.,   GRAMS                      249.51          250.56          253.69
    INITIAL WT., GRAMS                      249.46          250.36          253.64
    DIFFERENCE   GRAMS                         .05             .20             .05

    TOTAL EVAPORATIVE EMISSIONS                                            .30 GRAMS

EXHAUST EMISSIONS

    BLOWER DIF. PRESS., G2,  17.8 IN. H20                      BLOWER INLET PRESS., G1  17.8 IN. H20
                                                               BLOWER INLET TEMP.  110 DEG. F
    BAG RESULTS
    BAG NO.                                     1               2               3
    BLOWER REVOLUTIONS                      35212           55563           33406
    HC   SAMPLE  METER READING/SCALE         86.5/3          37.7/3          49.8/3
    HC   SAMPLE  PPM                         865             377             498
    HC   BACKGRD METER READING/SCALE          2.9/3           3.3/3           4.2/3
    HC   BACKGRD PPM                          29              33              42
    CO   SAMPLE  METER READING/SCALE         51.4/1          71.8/2          42.8/1
    CO   SAMPLE  PPM                        5117            2761            3815
    CO   BACKGRD METER READING/SCALE          1.4/2           2.5/2           6.1/2
    CO   BACKGRD PPM                          40              71             176
    CO2  SAMPLE  METER READING/SCALE         26.8/1          89.3/3          69.0/2
    CO2  SAMPLE  PERCENT                     2.48            1.60            2.05
    CO2  BACKGRD METER READING/SCALE          3.8/3           5.2/3           8.5/3
    CO2  BACKGRD PERCENT                     .05             .08             .12
    NOX  SAMPLE  METER READING/SCALE         28.6/3          45.7/3          71.4/3
    NOX  SAMPLE  PPM                        235.8           137.1           214.2
    NOX  BACKGRD METER READING/SCALE           .5/3           3.1/3           3.8/3
    NOX  BACKGRD PPM                          1.5             9.3            11.4

    HC   CONCENTRATION PPM                   843             349             464
    CO   CONCENTRATION PPM                  4801            2592            3490
    CO2  CONCENTRATION PCT                  2.43            1.54            1.95
    NOX  CONCENTRATION PPM                 234.6           129.1           204.9
    HC   MASS GRAMS                         32.42           21.17           16.93
    CO   MASS GRAMS                        372.95          317.78          257.22
    CO2  MASS GRAMS                       2984.51         2974.47         2272.50
    NOX  MASS GRAMS                         25.91           22.06           21.05

    WEIGHTED MASS HC       5.92 GRAMS/MILE
    WEIGHTED MASS CO      83.40 GRAMS/MILE
    WEIGHTED MASS CO2    241.68 GRAMS/MILE
    WEIGHTED MASS NOX    [illegible] GRAMS/MILE
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                    TABLE A-39.          VEHICLE EMISSION RESULTS
                                  PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO. 212        TEST NO. 1          DATE  3/ 2/73               MFGR. CODE   43                 YR.  1973
VEHICLE MODEL  CHEYENNE-20              ENGINE   454 CID 8          CURB WT.  4900                  GVW  6400


BAROMETER  29.05 IN.HG.                                             WET BULB TEMP 64.0 DEG. F
DRY BULB TEMP.  72.0 DEG. F                                         ABS. HUMIDITY 68.2 GRAINS/LB
REL. HUMIDITY     47 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                   1            2
     FINAL WT.,   GRAMS                    250.80       255.59
     INITIAL WT., GRAMS                    250.36       255.47
     DIFFERENCE   GRAMS                       .44          .12

     TOTAL EVAPORATIVE EMISSIONS                                        .56 GRAMS


EXHAUST EMISSIONS

                                                                    BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                    1            2            3
     BLOWER REVOLUTIONS                     33478        56021        33332
     HC   SAMPLE  METER READING/SCALE      57.4/3       35.7/3       53.9/3
     HC   SAMPLE  PPM                         574          357          539
     HC   BACKGRD METER READING/SCALE       4.1/3        3.2/3        3.4/3
     HC   BACKGRD PPM                          41           32           34
     CO   SAMPLE  METER READING/SCALE      78.4/2       69.7/2       81.2/2
     CO   SAMPLE  PPM                        3148         2652         3279
     CO   BACKGRD METER READING/SCALE       1.3/2         .9/2         .4/2
     CO   BACKGRD PPM                          37           25           11
     CO2  SAMPLE  METER READING/SCALE      86.1/2       62.8/2       82.3/2
     CO2  SAMPLE  PERCENT                    2.70         1.84         2.55
     CO2  BACKGRD METER READING/SCALE       4.6/3        3.4/3        2.3/3
     CO2  BACKGRD PERCENT                     .07          .05          .03
     NOX  SAMPLE  METER READING/SCALE      58.9/3       21.5/3       64.0/3
     NOX  SAMPLE  PPM                       176.7         64.5        192.0
     NOX  BACKGRD METER READING/SCALE       1.4/3        1.0/3         .9/3
     NOX  BACKGRD PPM                         4.2          3.0          2.7

     HC   CONCENTRATION PPM                   542          330          512
     CO   CONCENTRATION PPM                  2409         2497         3060
     CO2  CONCENTRATION PCT                  2.64         1.80         2.52
     NOX  CONCENTRATION PPM                 173.5         62.0        189.9
     HC   MASS GRAMS                        19.83        20.20        18.65
     CO   MASS GRAMS                       214.74       308.45       224.43
     CO2  MASS GRAMS                      3082.92      3502.20      2926.41
     NOX  MASS GRAMS                        20.39        12.19        22.22

     WEIGHTED MASS HC       5.25 GRAMS/MILE
     WEIGHTED MASS CO      70.53 GRAMS/MILE
     WEIGHTED MASS CO2    866.16 GRAMS/MILE
     WEIGHTED MASS NOX      4.48 GRAMS/MILE
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                    TABLE  A-40.              VEHICLE EMISSION RESULTS
                                        PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  212          TEST NO. 2           DATE  3/ 7/73
VEHICLE MODEL  CHEYENNE 20                  ENGINE    454 CID 8          MFGR. CODE   43
                                                                         CURB WT.  4900              YR.  1973
                                                                                                     GVW  6400
BAROMETER  29.02 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                              WET BULB TEMP 65.0 DEG. F
REL. HUMIDITY      56 PCT.                                               ABS. HUMIDITY 73.1 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,    GRAMS                        1              2
     INITIAL WT., GRAMS                      253.05         242.97
     DIFFERENCE    GRAMS                     252.83         242.88
                                                .22            .09
     TOTAL EVAPORATIVE EMISSIONS
                                                                           .31 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.8 IN. H2O                               BLOWER INLET PRESS., G1  17.8 IN. H2O
                                                                         BLOWER INLET TEMP.  112 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                         1               2                3
     HC    SAMPLE  METER READING/SCALE       33284           55920            33113
     HC    SAMPLE  PPM                        47.0/3          38.6/3           52.5/3
     HC    BACKGRD METER READING/SCALE        470             386              525
     HC    BACKGRD PPM                         5.1/3           5.0/3            5.0/3
     CO    SAMPLE  METER READING/SCALE         51              50               50
     CO    SAMPLE  PPM                        66.8/2          76.5/2           74.1/2
     CO    BACKGRD METER READING/SCALE       2505            3014             2883
     CO    BACKGRD PPM                         1.4/2           1.6/2             .7/2
     CO2   SAMPLE  METER READING/SCALE         40              45               20
     CO2   SAMPLE  PERCENT                    27.4/1          44.7/3           28.6/1
     CO2   BACKGRD METER READING/SCALE        2.54            1.85             2.67
     CO2   BACKGRD PERCENT                     4.2/3           4.3/3            4.6/3
     NOX   SAMPLE  METER READING/SCALE         .06             .06              .07
     NOX   SAMPLE  PPM                        50.6/3          19.1/3           57.8/3
     NOX   BACKGRD METER READING/SCALE       151.8            57.3            173.4
     NOX   BACKGRD PPM                          .1/3             .9/3             .7/3
                                                .3              2.7              2.1
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                  430             344              486
     CO2   CONCENTRATION PCT                 2311            2820             2673
     NOX   CONCENTRATION PPM                  2.49            1.79             2.62
     HC    MASS GRAMS                        151.6            55.0            171.8
     CO    MASS GRAMS                         15.53           20.89            17.48
     CO2   MASS GRAMS                        168.61          345.74           194.02
     NOX   MASS GRAMS                       2871.38         3471.33          3002.39
                                              18.00           10.98            20.30
     WEIGHTED MASS HC        4.00 GRAMS/MILE
     WEIGHTED MASS CO       21.51 GRAMS/MILE
     WEIGHTED MASS CO2     855.64 GRAMS/MILE
     WEIGHTED MASS NOX       4.04 GRAMS/MILE
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                              TABLE A-41.            VEHICLE EMISSION RESULTS
                                                PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  218          TEST NO. 1          DATE  3/ 2/73
VEHICLE MODEL  CUSTOM 20                   ENGINE   350 CID 8             MFGR. CODE   43                    YR.  1972
                                                                          CURB WT.  4340                     GVW  6200

BAROMETER  29.05 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                            WET BULB TEMP 64.0 DEG. F
REL. HUMIDITY     47 PCT.                                              ABS. HUMIDITY 68.2 GRAINS/LB

EVAPORATIVE EMISSIONS

    CANISTER
    FINAL WT.,   GRAMS                           1              2
    INITIAL WT., GRAMS                        249.40         253.17
    DIFFERENCE   GRAMS                        249.28         253.06
                                                .12            .11
    TOTAL EVAPORATIVE EMISSIONS
                                                                          .23 GRAMS

EXHAUST EMISSIONS

    BLOWER DIF. PRESS., G2,  17.8 IN. H20                              BLOWER INLET PRESS., G1  17.8 IN. H20
                                                                       BLOWER INLET TEMP.  112 DEG. F
    BAG RESULTS
    BAG NO.
    BLOWER REVOLUTIONS                            1              2              3
    HC   SAMPLE  METER READING/SCALE            33371          55786          33200
    HC   SAMPLE  PPM                             10.2/4         32.0/3         47.9/3
    HC   BACKGRD METER READING/SCALE            1020            320            479
    HC   BACKGRD PPM                              2.3/3          3.9/3          3.1/3
    CO   SAMPLE  METER READING/SCALE              23             39             31
    CO   SAMPLE  PPM                             75.1/2         42.1/2         48.6/2
    CO   BACKGRD METER READING/SCALE            2937           1406           1671
    CO   BACKGRD PPM                              0.0/2           .8/2          1.1/2
    CO2  SAMPLE  METER READING/SCALE               0             23             31
    CO2  SAMPLE  PERCENT                         69.1/2         78.1/3         99.5/3
    CO2  BACKGRD METER READING/SCALE             2.06           1.36           1.84
    CO2  BACKGRD PERCENT                          1.9/3          2.2/3          2.3/3
    NOX  SAMPLE  METER READING/SCALE              .03            .03            .03
    NOX  SAMPLE  PPM                             64.7/3         30.5/3         66.7/3
    NOX  BACKGRD METER READING/SCALE            194.1           91.5          200.1
    NOX  BACKGRD PPM                               .2/3          1.5/3          1.1/3
                                                   .6            4.5            3.3
    HC   CONCENTRATION PPM
    CO   CONCENTRATION PPM                      1001            285            453
    CO2  CONCENTRATION PCT                      2776           1328           1561
    NOX  CONCENTRATION PPM                      2.03           1.33           1.81
    HC   MASS GRAMS                            193.6           87.5          197.3
    CO   MASS GRAMS                             36.31          17.31          16.39
    CO2  MASS GRAMS                            203.31         162.61         113.71
    NOX  MASS GRAMS                           2353.45        2573.42        2085.35
                                                22.57          17.06          22.89
    WEIGHTED MASS HC      5.63 GRAMS/MILE
    WEIGHTED MASS CO     41.98 GRAMS/MILE
    WEIGHTED MASS CO2   636.54 GRAMS/MILE
    WEIGHTED MASS NOX     5.31 GRAMS/MILE
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          TABLE A-12.          VEHICLE EMISSION RESULTS
                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO. 21R        TEST NO. 2          DATE  4/ 8/23                  MFGR. CODE   43                      YR.  1972
VEHICLE MODEL  CUSTOM 20                ENGINE   350 CID-8             CURB WT.  4340                       GVW  6200

BAROMETER  29.00 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                            WET BULB TEMP 66.0 DEG. F
REL. HUMIDITY     54 PCT.                                              ABS. HUMIDITY 78.1 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                     1              2
     FINAL WT.,   GRAMS                        249.39         248.10
     INITIAL WT., GRAMS                        249.25         248.02
     DIFFERENCE   GRAMS                           .14            .08

     TOTAL EVAPORATIVE EMISSIONS
                                                                      .22 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                            BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                      BLOWER INLET TEMP.  112 DEG. F
     BAG RESULTS
     BAG NO.                                      1              2              3
     BLOWER REVOLUTIONS                        32035          55218          32355
     HC    SAMPLE   METER READING/SCALE         28.1/3         33.2/3         47.6/3
     HC    SAMPLE   PPM                          281            332            476
     HC    BACKGRD METER READING/SCALE          3.4/3          4.7/3          2.8/3
     HC    BACKGRD PPM                            39             43             28
     CO    SAMPLE   METER READING/SCALE         64.7/2         42.5/2         46.9/2
     CO    SAMPLE   PPM                         2401           1922           1600
     CO    BACKGRD METER READING/SCALE           .8/2           .7/2           .2/2
     CO    BACKGRD PPM                            23             20              6
     CO2   SAMPLE   METER READING/SCALE         24.5/1         78.7/3         98.4/3
     CO2   SAMPLE   PERCENT                     2.23           1.32           1.81
     CO2   BACKGRD METER READING/SCALE          4.2/3          3.5/3          2.6/3
     CO2   BACKGRD PERCENT                       .06            .05            .04
     NOX   SAMPLE   METER READING/SCALE         58.5/3         27.3/3         50.3/3
     NOX   SAMPLE   PPM                        175.5           81.9          150.9
     NOX   BACKGRD METER READING/SCALE          1.1/3          1.4/3           .8/3
     NOX   BACKGRD PPM                           3.4            4.2            2.4

     HC    CONCENTRATION PPM                     244            240            452
     CO    CONCENTRATION PPM                    2238           1343           1512
     CO2   CONCENTRATION PCT       --           2.18           1.33           1.78
     NOX   CONCENTRATION PPM                   172.9           78.2          148.9
     HC    MASS GRAMS                          26.08          17.58          15.90
     CO    MASS GRAMS                         152.29         164.16         107.32
     CO2   MASS GRAMS                        2421.61        2561.63        1997.82
     NOX   MASS GRAMS                          20.24          15.93          17.61

     WEIGHTED MASS HC       5.05 GRAMS/MILE
     WEIGHTED MASS CO      49.05 GRAMS/MILE
     WEIGHTED MASS CO2    642.22 GRAMS/MILE
     WEIGHTED MASS NOX      4.62 GRAMS/MILE
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                              TABLE A-43.             VEHICLE EMISSION RESULTS
                                                PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  218           TEST NO. 3
VEHICLE MODEL  CUSTOM 20                 DATE  4/ 9/73
                                         ENGINE    350 CID 8              MFGR. CODE   43
                                                                          CURB WT.  4340                  YR.  1972
                                                                                                          GVW  6200
BAROMETER  28.98 IN.HG.
DRY BULB TEMP.  78.0 DEG. F
REL. HUMIDITY      65 PCT.                                             WET BULB TEMP 70.0 DEG. F
                                                                       ABS. HUMIDITY 97.4 GRAINS/LB
EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                          1             2
     INITIAL WT., GRAMS                      255.38        251.12
     DIFFERENCE   GRAMS                      255.25        251.04
                                                .13           .08
     TOTAL EVAPORATIVE EMISSIONS
                                                                       .21 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                    BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                          1             2
     HC    SAMPLE  METER READING/SCALE       33365         56006           3
     HC    SAMPLE  PPM                        12.6/4        43.0/3      33194
     HC    BACKGRD METER READING/SCALE       1260            430          60.7/3
     HC    BACKGRD PPM                          5.5/3          6.0/3     607
     CO    SAMPLE  METER READING/SCALE          55            60           3.7/3
     CO    SAMPLE  PPM                        86.7/2        53.5/2        37
     CO    BACKGRD METER READING/SCALE       3608           1882          61.9/2
     CO    BACKGRD PPM                          8.5/2          4.0/2    2266
     CO2   SAMPLE  METER READING/SCALE        247            114           2.9/2
     CO2   SAMPLE  PERCENT                    70.2/2         76.4/3       83
     CO2   BACKGRD METER READING/SCALE         2.10          1.32         64.9/2
     CO2   BACKGRD PERCENT                      5.1/3          3.7/3       1.91
     NOX   SAMPLE  METER READING/SCALE          .07           .05          3.2/3
     NOX   SAMPLE  PPM                        49.4/3         24.6/3        .05
     NOX   BACKGRD METER READING/SCALE       148.2           73.8         59.3/3
     NOX   BACKGRD PPM                          .5/3          1.0/3      177.9
                                               1.5           3.0           1.0/3
                                                                           3.0
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                 1216            377
     CO2   CONCENTRATION PCT                 3191           1696          576
     NOX   CONCENTRATION PPM                 2.04           1.28         2068
     HC    MASS GRAMS                        147.0           71.1          1.87
     CO    MASS GRAMS                         44.18          23.00        175.4
     CO2   MASS GRAMS                        234.18         208.88         20.83
     NOX   MASS GRAMS                       2360.94        2482.66        150.97
                                              19.81          16.10       2156.88
                                                                           23.52
     WEIGHTED MASS HC        7.18 GRAMS/MILE
     WEIGHTED MASS CO       52.75 GRAMS/MILE
     WEIGHTED MASS CO2     630.31 GRAMS/MILE
     WEIGHTED MASS NOX       5.07 GRAMS/MILE
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TABLE A-44.

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                                                  VEHICLE EMISSION RESULTS
                                         PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  218         TEST NO. 4
VEHICLE MODEL  CUSTOM 20               DATE  3/10/73
                                       ENGINE   350 CID 8               MFGR. CODE   43                YR.  1972
                                                                        CURB WT.  4340                 GVW  6200
BAROMETER  28.80 IN.HG.
DRY BULB TEMP.  76.0 DEG. F
REL. HUMIDITY     43 PCT.                                            WET BULB TEMP 62.0 DEG. F
                                                                     ABS. HUMIDITY 60.5 GRAINS/LB
EVAPORATIVE EMISSIONS

    CANISTER
    FINAL WT.,   GRAMS                       1              2
    INITIAL WT., GRAMS                     253.52         250.89
    DIFFERENCE   GRAMS                     253.38         250.82
                                              .14            .07
    TOTAL EVAPORATIVE EMISSIONS

                                                                         .21 GRAMS
EXHAUST EMISSIONS


    BLOWER DIF. PRESS., G2,  17.6 IN. H2O                           BLOWER INLET PRESS., G1  17.6 IN. H2O
                                                                    BLOWER INLET TEMP.  112 DEG. F
    BAG RESULTS
    BAG NO.
    BLOWER REVOLUTIONS                            1              2
    HC   SAMPLE  METER READING/SCALE           33035          55915            3
    HC   SAMPLE  PPM                            13.0/4         38.5/3       33323
    HC   BACKGRD METER READING/SCALE           1300            385            53.5/3
    HC   BACKGRD PPM                              2.8/3          3.5/3       535
    CO   SAMPLE  METER READING/SCALE             28             35              3.4/3
    CO   SAMPLE  PPM                             86.3/2         44.3/2         34
    CO   BACKGRD METER READING/SCALE           3583           1444             51.3/2
    CO   BACKGRD PPM                              1.1/2           .7/2       1786
    CO2  SAMPLE  METER READING/SCALE             31             20               .2/2
    CO2  SAMPLE  PERCENT                         71.6/2         78.8/3          6
    CO2  BACKGRD METER READING/SCALE            2.15           1.37            65.7/2
    CO2  BACKGRD PERCENT                          3.6/3          3.5/3         1.94
    NOX  SAMPLE  METER READING/SCALE             .05            .05              2.8/3
    NOX  SAMPLE  PPM                             50.0/3         26.8/3           .04
    NOX  BACKGRD METER READING/SCALE           150.0            80.4            64.7/3
    NOX  BACKGRD PPM                               .3/3           .1/3        194.1
                                                   .9             .3              .8/3
                                                                                 2.4
    HC   CONCENTRATION PPM
    CO   CONCENTRATION PPM                     1277            354
    CO2  CONCENTRATION PCT                     3361           1917            506
    NOX  CONCENTRATION PPM                      2.11           1.33           1690
    HC   MASS GRAMS                             149.3            80.1           1.90
    CO   MASS GRAMS                              45.50          21.34          192.1
    CO2  MASS GRAMS                             241.68         172.45           18.20
    NOX  MASS GRAMS                            2390.92        2555.14          122.60
                                                 16.51          15.00         2180.17
                                                                                21.42
    WEIGHTED MASS HC      6.84 GRAMS/MILE
    WEIGHTED MASS CO     44.17 GRAMS/MILE
    WEIGHTED MASS CO2   643.46 GRAMS/MILE
    WEIGHTED MASS NOX     4.57 GRAMS/MILE
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TABLE A-45.

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                                VEHICLE EMISSION RESULTS
                           PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  219        TEST NO. 1          DATE  3/ 8/73               MFGR. CODE   43                  YR.  1973
VEHICLE MODEL  30                        ENGINE    350 CID 8         CURB WT.  4040                   GVW  6400

BAROMETER  29.00 IN.HG.                                             WET BULB TEMP 68.0 DEG. F
DRY BULB TEMP.  77.0 DEG. F                                         ABS. HUMIDITY 88.3 GRAINS/LB
REL. HUMIDITY      61 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                  1              2
     FINAL WT.,    GRAMS                    254.95         249.40
     INITIAL WT.,  GRAMS                    254.89         249.30
     DIFFERENCE    GRAMS                       .06            .10

     TOTAL EVAPORATIVE EMISSIONS                                          .16 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                    BLOWER INLET TEMP.  112 DEG. F
     BAG RESULTS
     BAG NO.                                   1              2              3
     BLOWER REVOLUTIONS                     33220          55822          32980
     HC    SAMPLE  METER READING/SCALE     59.7/3         36.0/3         51.3/3
     HC    SAMPLE  PPM                        597            360            513
     HC    BACKGRD METER READING/SCALE      3.7/3          4.3/3          3.9/3
     HC    BACKGRD PPM                         37             43             39
     CO    SAMPLE  METER READING/SCALE     80.4/2         40.6/2         51.5/2
     CO    SAMPLE  PPM                       3233           1347           1795
     CO    BACKGRD METER READING/SCALE       .7/2           .4/2           .6/2
     CO    BACKGRD PPM                         20             11             17
     CO2   SAMPLE  METER READING/SCALE     29.3/1         95.2/3         26.6/1
     CO2   SAMPLE  PERCENT                   2.75           1.74           2.45
     CO2   BACKGRD METER READING/SCALE      4.4/3          4.2/3          2.1/3
     CO2   BACKGRD PERCENT                    .06            .06            .03
     NOX   SAMPLE  METER READING/SCALE     48.4/3         20.2/3         48.1/3
     NOX   SAMPLE  PPM                      145.2           60.6          144.3
     NOX   BACKGRD METER READING/SCALE       .7/3           .8/3           .6/3
     NOX   BACKGRD PPM                        2.1            2.4            1.8

     HC    CONCENTRATION PPM                  569            323            482
     CO    CONCENTRATION PPM                 2984           1266           1662
     CO2   CONCENTRATION PCT                 2.70           1.69           2.43
     NOX   CONCENTRATION PPM                143.6           58.5          142.9
     HC    MASS GRAMS                       20.52          19.60          17.26
     CO    MASS GRAMS                      217.44         155.04         120.20
     CO2   MASS GRAMS                     3106.27        3262.02        2775.67
     NOX   MASS GRAMS                       18.34          12.56          18.11

     WEIGHTED MASS HC       5.10 GRAMS/MILE
     WEIGHTED MASS CO      42.27 GRAMS/MILE
     WEIGHTED MASS CO2    823.98 GRAMS/MILE
     WEIGHTED MASS NOX      4.10 GRAMS/MILE
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                         TABLE  A-46.          VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  214         TEST NO. 2          DATE  3/ 9/73
VEHICLE MODEL  30                         ENGINE   350 CID 8             MFGR. CODE   43                    YR.  1973
                                                                         CURB WT.  4040                     GVW  6400

BAROMETER  28.97 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                           WET BULB TEMP 70.0 DEG. F
REL. HUMIDITY      65 PCT.                                            ABS. HUMIDITY 97.4 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                         1               2
     INITIAL WT., GRAMS                      251.48          255.99
     DIFFERENCE   GRAMS                      251.40          255.95
                                                .08             .04
     TOTAL EVAPORATIVE EMISSIONS
                                                                          .12 GRAMS

EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H20                              BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                        BLOWER INLET TEMP.  112 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                          1               2               3
     HC    SAMPLE  METER READING/SCALE        33600           55858           33125
     HC    SAMPLE  PPM                        59.6/3          38.7/3          54.8/3
     HC    BACKGRD METER READING/SCALE         596             387             548
     HC    BACKGRD PPM                          4.3/3           4.6/3           4.7/3
     CO    SAMPLE  METER READING/SCALE          43              46              47
     CO    SAMPLE  PPM                        82.1/2          45.4/2          63.6/2
     CO    BACKGRD METER READING/SCALE        3332            1539            2347
     CO    BACKGRD PPM                         1.3/2            .3/2           3.6/2
     CO2   SAMPLE  METER READING/SCALE          32               8             103
     CO2   SAMPLE  PERCENT                    87.5/2          94.5/3          81.0/2
     CO2   BACKGRD METER READING/SCALE         2.75            1.72            2.50
     CO2   BACKGRD PERCENT                     4.1/3           4.9/3           5.9/3
     NOX   SAMPLE  METER READING/SCALE          .06             .07             .09
     NOX   SAMPLE  PPM                        42.0/3          19.0/3          47.7/3
     NOX   BACKGRD METER READING/SCALE        126.0            57.0           143.1
     NOX   BACKGRD PPM                          .9/3           1.3/3           1.4/3
                                                2.7             3.9             4.2
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                   563             348             511
     CO2   CONCENTRATION PCT                  3058            1449            2106
     NOX   CONCENTRATION PPM                  2.71            1.66            2.43
     HC    MASS GRAMS                        123.9            53.7           139.8
     CO    MASS GRAMS                        20.16           21.07           18.36
     CO2   MASS GRAMS                       221.12          177.30          152.85
     NOX   MASS GRAMS                      3089.80         3212.19         2784.81
                                             16.46           12.06           18.63
     WEIGHTED MASS HC        4.36 GRAMS/MILE
     WEIGHTED MASS CO       47.94 GRAMS/MILE
     WEIGHTED MASS CO2  [illegible] GRAMS/MILE
     WEIGHTED MASS NOX   [illegible] GRAMS/MILE
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                    TABLE A-47.          VEHICLE EMISSION RESULTS
                                  PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  220          TEST NO. 1            DATE   4/ 6/73                  MFGR. CODE   31                YR.  1970
VEHICLE MODEL  CUSTOM F350                   ENGINE   360 CID 8              CURB WT.  6000                GVW 10000

BAROMETER  24.94 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                          WET BULB TEMP 69.0 DEG. F
REL. HUMIDITY     66 PCT.                                            ABS. HUMIDITY 93.6 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                   1             2
     FINAL WT.,   GRAMS                     249.89        248.99
     INITIAL WT., GRAMS                     249.57        248.88
     DIFFERENCE   GRAMS                        .32           .11

     TOTAL EVAPORATIVE EMISSIONS                                            .43 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                           BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                     BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                         1             2             3
     BLOWER REVOLUTIONS                          33066         55943         33204
     HC   SAMPLE  METER READING/SCALE           65.6/3        23.6/3        46.0/3
     HC   SAMPLE  PPM                              656           236           460
     HC   BACKGRD METER READING/SCALE            4.6/3         4.5/3         3.8/3
     HC   BACKGRD PPM                               46            45            38
     CO   SAMPLE  METER READING/SCALE           57.0/1        48.0/2        48.4/1
     CO   SAMPLE  PPM                             6143          1644          4630
     CO   BACKGRD METER READING/SCALE            4.4/2         2.4/2         1.3/2
     CO   BACKGRD PPM                              126            68            37
     CO2  SAMPLE  METER READING/SCALE           97.8/2        95.2/3        85.4/2
     CO2  SAMPLE  PERCENT                         3.17          1.74          2.67
     CO2  BACKGRD METER READING/SCALE            5.2/3         5.4/3         3.9/3
     CO2  BACKGRD PERCENT                          .08           .08           .06
     NOX  SAMPLE  METER READING/SCALE           38.8/4        22.1/3        36.0/4
     NOX  SAMPLE  PPM                            388.0         216.3         360.0
     NOX  BACKGRD METER READING/SCALE            1.8/3         7.2/3         3.7/3
     NOX  BACKGRD PPM                              5.4          21.6          11.1

     HC   CONCENTRATION PPM                        623           192           431
     CO   CONCENTRATION PPM                       5548          1499          4265
     CO2  CONCENTRATION PCT                       3.12          1.67          2.62
     NOX  CONCENTRATION PPM                      384.1         192.8         351.5
     HC   MASS GRAMS                             23.22         12.45         16.13
     CO   MASS GRAMS                            417.48        190.80        322.30
     CO2  MASS GRAMS                           3208.93       3361.73       3132.74
     NOX  MASS GRAMS                             52.04         45.34         47.82

     WEIGHTED MASS HC        4.22 GRAMS/MILE
     WEIGHTED MASS CO       24.87 GRAMS/MILE
     WEIGHTED MASS CO2     694.46 GRAMS/MILE
     WEIGHTED MASS NOX      12.66 GRAMS/MILE
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                    TABLE A-48.           VEHICLE EMISSION RESULTS
                                    PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  226        TEST NO. 2
VEHICLE MODEL  CUSTOM F350        DATE  4/10/73
                                  ENGINE   300 CID 6           MFGR. CODE   31                  YR.  1970
                                                               CURB WT.  6000                   GVW 10000

BAROMETER  29.90 IN.HG.
DRY BULB TEMP.  76.0 DEG. F                               WET BULB TEMP 62.0 DEG. F
REL. HUMIDITY     43 PCT.                                 ABS. HUMIDITY 60.5 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                   1               2
     INITIAL WT., GRAMS                253.95          253.62
     DIFFERENCE   GRAMS                253.55          253.55
                                          .40             .07
     TOTAL EVAPORATIVE EMISSIONS
                                                                 .47 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.6 IN. H2O                    BLOWER INLET PRESS., G1  17.6 IN. H2O
                                                              BLOWER INLET TEMP.  112 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                      1              2              3
     HC   SAMPLE  METER READING/SCALE    33266          55981          33086
     HC   SAMPLE  PPM                     66.8/3         22.1/3         32.9/3
     HC   BACKGRD METER READING/SCALE     668            221            329
     HC   BACKGRD PPM                      2.6/3          2.5/3          2.0/3
     CO   SAMPLE  METER READING/SCALE      26             25             20
     CO   SAMPLE  PPM                     56.7/1         51.6/2         44.9/1
     CO   BACKGRD METER READING/SCALE    6084           1799           4107
     CO   BACKGRD PPM                      3.4/2           .9/2          1.3/2
     CO2  SAMPLE  METER READING/SCALE      97             25             37
     CO2  SAMPLE  PERCENT                 95.1/2         92.1/3         76.4/2
     CO2  BACKGRD METER READING/SCALE     3.06           1.67           2.32
     CO2  BACKGRD PERCENT                  5.2/3          3.4/3          2.9/3
     NOX  SAMPLE  METER READING/SCALE      .08            .05            .04
     NOX  SAMPLE  PPM                     38.7/4         72.3/3         35.5/4
     NOX  BACKGRD METER READING/SCALE    387.0          216.9          355.0
     NOX  BACKGRD PPM                      1.2/3          8.1/3          4.9/3
                                           3.6           24.3           14.7
     HC   CONCENTRATION PPM
     CO   CONCENTRATION PPM               649            199            313
     CO2  CONCENTRATION PCT              5572           1695           3838
     NOX  CONCENTRATION PPM              3.01           1.63           2.29
     HC   MASS GRAMS                    384.4          196.0          343.3
     CO   MASS GRAMS                    23.28          12.04          11.17
     CO2  MASS GRAMS                   403.50         206.54         276.40
     NOX  MASS GRAMS                  3438.04        3127.29        2604.96
                                        42.80          36.72          38.02
     WEIGHTED MASS HC       3.29 GRAMS/MILE
     WEIGHTED MASS CO      71.68 GRAMS/MILE
     WEIGHTED MASS CO2    812.16 GRAMS/MILE
     WEIGHTED MASS NOX     10.24 GRAMS/MILE
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                              TABLE A-49.
                                                  VEHICLE EMISSION RESULTS
                                             PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  221          TEST NO. 1
VEHICLE MODEL  ECONOLINE 300              DATE  3/19/72
                                          ENGINE   302 CID 8                 MFGR. CODE   31
                                                                             CURB WT.  6580                  YR.  1972
                                                                                                             GVW  8300
BAROMETER  28.90 IN.HG.
DRY BULB TEMP.  76.0 DEG. F
REL. HUMIDITY     56 PCT.                                                   WET BULB TEMP 66.0 DEG. F
                                                                            ABS. HUMIDITY 79.7 GRAINS/LB
EVAPORATIVE EMISSIONS

    CANISTER
    FINAL WT.,   GRAMS                         1             2
    INITIAL WT., GRAMS                      255.90        251.98
    DIFFERENCE   GRAMS                      255.31        251.91
                                               .09           .07
    TOTAL EVAPORATIVE EMISSIONS

                                                                              .16 GRAMS
EXHAUST EMISSIONS


    BLOWER DIF. PRESS., G2,  17.5 IN. H20                                   BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                            BLOWER INLET TEMP.  110 DEG. F
    BAG RESULTS
    BAG NO.
    BLOWER REVOLUTIONS                             1              2              3
    HC    SAMPLE  METER READING/SCALE           33974          55843          32505
    HC    SAMPLE  PPM                            78.9/3         27.9/3         56.7/3
    HC    BACKGRD METER READING/SCALE           789            279            567
    HC    BACKGRD PPM                            1.8/3          3.3/3          2.6/3
    CO    SAMPLE  METER READING/SCALE           18             33             26
    CO    SAMPLE  PPM                           60.9/1         42.9/2         98.1/2
    CO    BACKGRD METER READING/SCALE           6963           1438           4356
    CO    BACKGRD PPM                            1.0/2           .6/2           .5/2
    CO2   SAMPLE  METER READING/SCALE           28             17             14
    CO2   SAMPLE  PERCENT                       89.7/2         87.0/3         85.1/2
    CO2   BACKGRD METER READING/SCALE           2.84           1.55           2.66
    CO2   BACKGRD PERCENT                        3.2/3          4.0/3          3.3/3
    NOX   SAMPLE  METER READING/SCALE            .05            .06            .05
    NOX   SAMPLE  PPM                           69.0/3         45.7/3         87.8/3
    NOX   BACKGRD METER READING/SCALE          207.0          137.1          263.4
    NOX   BACKGRD PPM                             .6/3          1.5/3          1.0/3
                                                 1.8            4.5            3.0
    HC    CONCENTRATION PPM
    CO    CONCENTRATION PPM                     776            250            547
    CO2   CONCENTRATION PCT                     6936           1354           4043
    NOX   CONCENTRATION PPM                     2.81           1.50           2.62
    HC    MASS GRAMS                           205.7          133.2          261.1
    CO    MASS GRAMS                            28.63          15.18          19.32
    CO2   MASS GRAMS                           479.57         165.88         288.24
    NOX   MASS GRAMS                          3301.51        2904.98        2949.63
                                                25.74          27.40          31.27
    WEIGHTED MASS HC       5.13 GRAMS/MILE
    WEIGHTED MASS CO      71.52 GRAMS/MILE
    WEIGHTED MASS CO2    800.79 GRAMS/MILE
    WEIGHTED MASS NOX      7.51 GRAMS/MILE
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                   TABLE A-50.          VEHICLE EMISSION RESULTS
                                  PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  221        TEST NO. 2          DATE  3/15/73                   MFGR. CODE   31                YR.  1972
VEHICLE MODEL  FCONOLINE 300             ENGINE   302 CID 8              CURB WT.  6580                 GVW  8300

BAROMETER  28.77 IN.HG.
DRY BULB TEMP.  75.0 DEG. F                                           WET BULB TEMP 70.0 DEG. F
REL. HUMIDITY     74 PCT.                                             ABS. HUMIDITY 92.3 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                     1             2
     FINAL WT.,    GRAMS                       251.35        251.55
     INITIAL WT., GRAMS                        251.25        251.41
     DIFFERENCE    GRAMS                          .10           .14

     TOTAL EVAPORATIVE EMISSIONS
                                                                        .24 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                            BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                      BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                      1             2             3
     BLOWER REVOLUTIONS                       33969         55339         33178
     HC   SAMPLE  METER READING/SCALE          11.5/4        31.7/3        51.8/3
     HC   SAMPLE  PPM                        1150           317           518
     HC   BACKGRD METER READING/SCALE           3.2/3         4.0/3         3.1/3
     HC   BACKGRD PPM                          32            40            31
     CO   SAMPLE  METER READING/SCALE          63.9/1        46.1/2        91.5/2
     CO   SAMPLE  PPM                        7666          1567          3911
     CO   BACKGRD METER READING/SCALE           3.1/2         1.2/2          .6/2
     CO   BACKGRD PPM                          88            34            17
     CO2  SAMPLE  METER READING/SCALE          31.6/1        94.5/3        80.3/2
     CO2  SAMPLE  PERCENT                       3.01          1.72          2.47
     CO2  BACKGRD METER READING/SCALE           4.0/3         4.2/3         3.3/3
     CO2  BACKGRD PERCENT                        .06           .06           .05
     NOX  SAMPLE  METER READING/SCALE          58.2/3        39.9/3        68.5/3
     NOX  SAMPLE  PPM                         174.6         119.7         205.5
     NOX  BACKGRD METER READING/SCALE            .4/3         1.5/3         1.3/3
     NOX  BACKGRD PPM                           1.2           4.5           3.9

     HC   CONCENTRATION PPM                  1127           283           494
     CO   CONCENTRATION PPM                  6977          1949          3618
     CO2  CONCENTRATION PCT                     2.97          1.67          2.43
     NOX  CONCENTRATION PPM                   173.7         115.8         202.4
     HC   MASS GRAMS                           41.40         16.91         17.71
     CO   MASS GRAMS                          517.34        175.10        262.04
     CO2  MASS GRAMS                         3472.83       3187.13       2783.18
     NOX  MASS GRAMS                           24.28         26.37         27.63

     WEIGHTED MASS HC        5.97 GRAMS/MILE
     WEIGHTED MASS CO       72.92 GRAMS/MILE
     WEIGHTED MASS CO2     835.58 GRAMS/MILE
     WEIGHTED MASS NOX       7.01 GRAMS/MILE
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                          TABLE A-51.             VEHICLE EMISSION RESULTS
                                              PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  222          TEST NO. 1             DATE  4/15/73
VEHICLE MODEL  CUSTOM 400                     ENGINE   318 CID H             MFGR. CODE   22                     YR.  1972
                                                                             CURB WT.  5350                     GVW 10000

BAROMETER  28.74 IN.HG.
DRY BULB TEMP.  71.0 DEG. F                                                 WET BULB TEMP 69.0 DEG. F
REL. HUMIDITY     58 PCT.                                                   ABS. HUMIDITY 90.4 GRAINS/LB

EVAPORATIVE EMISSIONS

    CANISTER
    FINAL WT.,   GRAMS                              1              2
    INITIAL WT., GRAMS                           252.52         250.03
    DIFFERENCE   GRAMS                           252.16         249.94
                                                    .36            .09
    TOTAL EVAPORATIVE EMISSIONS
                                                                               .45 GRAMS

EXHAUST EMISSIONS


    BLOWER DIF. PRESS., G2,  17.5 IN. H2O                                   BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                            BLOWER INLET TEMP.  110 DEG. F
    BAG RESULTS
    BAG NO.
    BLOWER REVOLUTIONS                              1              2              3
    HC    SAMPLE  METER READING/SCALE           33668          56063          33311
    HC    SAMPLE  PPM                            12.3/4         53.1/3         79.5/3
    HC    BACKGRD METER READING/SCALE          1230            531            796
    HC    BACKGRD PPM                               .6/3           .6/3          5.8/3
    CO    SAMPLE  METER READING/SCALE               6              6             58
    CO    SAMPLE  PPM                             50.3/1         71.7/2         43.2/1
    CO    BACKGRD METER READING/SCALE          4434           2256           3869
    CO    BACKGRD PPM                               .6/2           .6/2           .9/2
    CO2   SAMPLE  METER READING/SCALE              17             17             25
    CO2   SAMPLE  PERCENT                         93.1/2         87.5/3         88.0/2
    CO2   BACKGRD METER READING/SCALE             2.98           1.57           2.77
    CO2   BACKGRD PERCENT                          2.3/3          2.7/3          2.9/3
    NOX   SAMPLE  METER READING/SCALE              .03            .04            .04
    NOX   SAMPLE  PPM                             77.6/3         38.6/3         88.7/3
    NOX   BACKGRD METER READING/SCALE           232.8          115.8          266.1
    NOX   BACKGRD PPM                              2.4/3          2.3/3          1.0/3
                                                   7.2            6.9            3.0
    HC    CONCENTRATION PPM
    CO    CONCENTRATION PPM                      1226            526            752
    CO2   CONCENTRATION PCT                      4542           2607           3572
    NOX   CONCENTRATION PPM                      2.95           1.54           2.74
    HC    MASS GRAMS                            227.5          109.9          263.8
    CO    MASS GRAMS                            44.65          31.40          27.10
    CO2   MASS GRAMS                           334.43         314.25         259.91
    NOX   MASS GRAMS                          3430.94        2972.11        3148.14
                                                24.63          23.83          33.99
    WEIGHTED MASS HC       6.87 GRAMS/MILE
    WEIGHTED MASS CO      81.44 GRAMS/MILE
    WEIGHTED MASS CO2    832.25 GRAMS/MILE
    WEIGHTED MASS NOX      7.96 GRAMS/MILE
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                     TABLE A-52.            VEHICLE EMISSION RESULTS
                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  222         TEST NO. 2          DATE  3/16/73                     MFGR. CODE   22                    YR.  1972
VEHICLE MODEL  CUSTOM 300                 ENGINE   318 CID 8                CURB WT.  5350                     GVW 10000

BAROMETER  24.25 IN.HG.                                                WET BULB TEMP 55.0 DEG. F
DRY BULB TEMP.  76.0 DEG. F                                            ABS. HUMIDITY 30.5 GRAINS/LB
REL. HUMIDITY     22 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                    1             2
     FINAL WT..    GRAMS                 .    250.65        250.05
     INITIAL WT.., GRAMS                      250.47        249.95
     DIFFERENCE    GRAMS                         .18           .10

     TOTAL EVAPORATIVE EMISSIONS                                               .28 GRAMS

EXHAUST EMISSIONS

                                                                       BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                             BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                     1             2             3
     BLOWER REVOLUTIONS                      33287         55710         33281
     HC    SAMPLE   METER READING/SCALE       11.0/4        45.1/3        64.4/3
     HC    SAMPLE   PPM                       1100           451           644
     HC    BACKGRD METER READING/SCALE         2.9/3         1.0/3         3.3/3
     HC    BACKGRD PPM                          29            10            33
     CO    SAMPLE   METER READING/SCALE       43.8/1        66.9/2        84.5/2
     CO    SAMPLE   PPM                       3952          2510          3474
     CO    BACKGRD METER READING/SCALE          .3/2         0.0/2          .2/2
     CO    BACKGRD PPM                           8             0             6
     CO2   SAMPLE   METER READING/SCALE       87.5/2        99.3/3        78.3/2
     CO2   SAMPLE   PERCENT                   2.75          1.84          2.39
     CO2   BACKGRD METER READING/SCALE         3.3/3         2.7/3         3.9/3
     CO2   BACKGRD PERCENT                     .05           .04           .06
     NOX   SAMPLE   METER READING/SCALE       73.9/3        50.8/3        76.8/3
     NOX   SAMPLE   PPM                      221.7         152.4         230.4
     NOX   BACKGRD METER READING/SCALE         1.3/3         5.0/3         4.1/3
     NOX   BACKGRD PPM                         3.9          15.0          12.3

     HC    CONCENTRATION PPM                  1078           443           618
     CO    CONCENTRATION PPM                  3708          2403          3285
     CO2   CONCENTRATION PCT                  2.71          1.80          2.35
     NOX   CONCENTRATION PPM                 218.7         134.8         220.7
     HC    MASS GRAMS                        39.48         27.12         22.62
     CO    MASS GRAMS                       274.17        297.39        242.82
     CO2   MASS GRAMS                      3170.14       3523.22       2743.60
     NOX   MASS GRAMS                        21.97         23.50         22.16

     WEIGHTED MASS HC       7.60 GRAMS/MILE
     WEIGHTED MASS CO      73.83 GRAMS/MILE
     WEIGHTED MASS CO2    860.03 GRAMS/MILE
     WEIGHTED MASS NOX      6.08 GRAMS/MILE
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                              TABLE A-53.       VEHICLE EMISSION RESULTS
                                           PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  222         TEST NO. 3          DATE  3/19/73                      MFGR. CODE   22                YR.  1972
VEHICLE MODEL  CUSTOM 300                 ENGINE   318 CID 8                 CURB WT.  5350                 GVW 10000

BAROMETER  28.96 IN.HG.                                                    WET BULB TEMP 66.0 DEG. F
DRY BULB TEMP.  77.0 DEG. F                                                ABS. HUMIDITY 78.1 GRAINS/LB
REL. HUMIDITY     53 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                      1             2
     FINAL WT.,   GRAMS                         254.04        247.94
     INITIAL WT., GRAMS                         253.87        247.85
     DIFFERENCE   GRAMS                            .17           .09

     TOTAL EVAPORATIVE EMISSIONS                                                 .26 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                                 BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                           BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                       1             2             3
     BLOWER REVOLUTIONS                         31659         55651         33155
     HC    SAMPLE  METER READING/SCALE          10.8/4        50.5/3        73.5/3
     HC    SAMPLE  PPM                          1080           505           735
     HC    BACKGRD METER READING/SCALE           3.1/3         4.0/3         3.7/3
     HC    BACKGRD PPM                            31            40            37
     CO    SAMPLE  METER READING/SCALE          45.0/1        73.3/2        96.4/2
     CO    SAMPLE  PPM                          4121          2840          4238
     CO    BACKGRD METER READING/SCALE            .8/2          .7/2          .6/2
     CO    BACKGRD PPM                            23            20            17
     CO2   SAMPLE  METER READING/SCALE          83.1/2        86.0/3        74.8/2
     CO2   SAMPLE  PERCENT                      2.58          1.53          2.26
     CO2   BACKGRD METER READING/SCALE           6.4/3         6.1/3         5.0/3
     CO2   BACKGRD PERCENT                       .09           .09           .07
     NOX   SAMPLE  METER READING/SCALE          57.8/3        34.0/3        62.2/3
     NOX   SAMPLE  PPM                         173.4         102.0         186.6
     NOX   BACKGRD METER READING/SCALE            .5/2         1.2/3          .9/3
     NOX   BACKGRD PPM                            .5           3.6           2.7

     HC    CONCENTRATION PPM                    1056           471           706
     CO    CONCENTRATION PPM                    3828          2691          3967
     CO2   CONCENTRATION PCT                    2.51          1.45          2.21
     NOX   CONCENTRATION PPM                   173.0          98.9         184.5
     HC    MASS GRAMS                          36.40         28.51         25.47
     CO    MASS GRAMS                         266.41        329.15        289.07
     CO2   MASS GRAMS                        2754.74       2808.35       2539.66
     NOX   MASS GRAMS                          20.07         20.16         22.40

     WEIGHTED MASS HC       7.82 GRAMS/MILE
     WEIGHTED MASS CO      81.13 GRAMS/MILE
     WEIGHTED MASS CO2    725.40 GRAMS/MILE
     WEIGHTED MASS NOX      5.54 GRAMS/MILE
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                    TABLF A [illegible].          VEHICLF FMISSION RESULTS
                                          PROPOSED MFDIUM DUTY DRIVING SCHEDULE
UNIT NO.  222        TEST NO. 4          DATE  3/20/73                   MFGR. CODE   22                 YR.  1972
VEHICLE MODFL  CUSTOM 300                ENGINE   318 CID B              CURB WT.  5350                  GVW 10000

BAROMETER  29.14 IN.HG.                                               WET BULB TEMP 57.0 DEG. F
DRY BULB TEMP.  78.0 DEG. F                                           ABS. HUMIDITY 35.4 GRAINS/LB
REL. HUMIDITY     24 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                     1              2
     FINAL WT.,    GRAMS                       259.71         259.24
     INITIAL WT., GRAMS                        259.55         259.15
     DIFFERENCE    GRAMS                          .16            .09

     TOTAL EVAPORATIVE EMISSIONS                                            .25 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                           BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                     BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                       1              2              3
     BLOWER REVOLUTIONS                         33456          55324          33012
     HC    SAMPLE  METER READING/SCALE          11.8/4         49.5/3         67.7/3
     HC    SAMPLE  PPM                           1180            495            677
     HC    BACKGRD METER READING/SCALE           3.4/3           .6/3          3.6/3
     HC    BACKGRD PPM                             34              6             36
     CO    SAMPLE  METER READING/SCALE          48.3/1         71.8/2         84.4/2
     CO    SAMPLE  PPM                           4614           2761           3468
     CO    BACKGRD METER READING/SCALE           2.9/2          1.5/2           .9/2
     CO    BACKGRD PPM                             83             42             25
     CO2   SAMPLE  METER READING/SCALE          69.9/2         64.3/2         90.4/2
     CO2   SAMPLE  PERCENT                       2.09           1.89           2.87
     CO2   BACKGRD METER READING/SCALE           4.0/3          3.1/3          3.8/3
     CO2   BACKGRD PERCENT                        .06            .04            .05
     NOX   SAMPLE  METER READING/SCALE          62.1/3         35.9/3         62.7/3
     NOX   SAMPLE  PPM                          186.3          107.7          188.1
     NOX   BACKGRD METER READING/SCALE           1.3/3          3.8/3          1.5/3
     NOX   BACKGRD PPM                            3.9           11.4            4.5

     HC    CONCENTRATION PPM                     1153            490            650
     CO    CONCENTRATION PPM                     4328           2604           3231
     CO2   CONCENTRATION PCT                     2.04           1.85           2.83
     NOX   CONCENTRATION PPM                    183.2           98.2          184.7
     HC    MASS GRAMS                           42.26          29.71          23.50
     CO    MASS GRAMS                          320.33         318.76         235.97
     CO2   MASS GRAMS                         2384.08        3572.85        3259.75
     NOX   MASS GRAMS                           18.78          16.44          18.68

     WEIGHTED MASS HC       8.17 GRAMS/MILE
     WEIGHTED MASS CO      78.80 GRAMS/MILE
     WEIGHTED MASS CO2    861.48 GRAMS/MILE
     WEIGHTED MASS NOX      4.72 GRAMS/MILE
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TABLE A-55.

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                                   VEHICLE EMISSION RESULTS
                           PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO. 223          TEST NO. 1        DATE   3/20/73                MFGR. CODE   46             YR.  1972
VEHICLE MODEL  CUSTOM 35                ENGINE   350 CID 8            CURB WT.  5590              GVW  9000

BAROMETER  29.14 IN.HG.
DRY BULB TEMP.  76.0 DEG. F                                    WET BULB TEMP 55.0 DEG. F
REL. HUMIDITY     22 PCT.                                      ABS. HUMIDITY 30.5 GRAINS/LB

EVAPORATIVE EMISSIONS

    CANISTER                                  1              2
    FINAL WT.,    GRAMS                  252.18         249.80
    INITIAL WT., GRAMS                   251.93         249.78
    DIFFERENCE    GRAMS                     .25            .02

    TOTAL EVAPORATIVE EMISSIONS
                                                                    .27 GRAMS

EXHAUST EMISSIONS

    BLOWER DIF. PRESS., G2,  17.5 IN. H2O                     BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                              BLOWER INLET TEMP.  110 DEG. F
    BAG RESULTS
    BAG NO.                                      1              2              3
    BLOWER REVOLUTIONS                       33225          56111          32946
    HC   SAMPLE  METER READING/SCALE        12.3/4         65.1/3         83.1/3
    HC   SAMPLE  PPM                          1230            651            831
    HC   BACKGRD METER READING/SCALE         2.7/3          3.3/3          2.8/3
    HC   BACKGRD PPM                            27             33             28
    CO   SAMPLE  METER READING/SCALE        97.4/2         76.4/2         89.6/2
    CO   SAMPLE  PPM                          4302           3008           3789
    CO   BACKGRD METER READING/SCALE          .6/2           .4/2           .3/2
    CO   BACKGRD PPM                            17             11              8
    CO2  SAMPLE  METER READING/SCALE        98.0/3         58.9/3         87.6/3
    CO2  SAMPLE  PERCENT                      1.80           1.17           1.57
    CO2  BACKGRD METER READING/SCALE         2.5/3          2.7/3          2.6/3
    CO2  BACKGRD PERCENT                       .04            .04            .04
    NOX  SAMPLE  METER READING/SCALE        96.4/3         53.0/3         88.2/3
    NOX  SAMPLE  PPM                         289.2          159.0          264.6
    NOX  BACKGRD METER READING/SCALE          .2/3          1.1/3           .6/3
    NOX  BACKGRD PPM                            .6            3.3            1.8

    HC   CONCENTRATION PPM                    1208            622            807
    CO   CONCENTRATION PPM                    4113           2909           3641
    CO2  CONCENTRATION PCT                    1.77           1.13           1.53
    NOX  CONCENTRATION PPM                   288.7          156.1          263.1
    HC   MASS GRAMS                          43.97          38.23          29.14
    CO   MASS GRAMS                         302.33         361.17         265.38
    CO2  MASS GRAMS                        2060.57        2224.76        1765.52
    NOX  MASS GRAMS                          28.93          26.32          26.05

    WEIGHTED MASS HC       9.83 GRAMS/MILE
    WEIGHTED MASS CO      85.66 GRAMS/MILE
    WEIGHTED MASS CO2    548.95 GRAMS/MILE
    WEIGHTED MASS NOX      7.14 GRAMS/MILE
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                         TABLE A-56.            VEHICLE EMISSION RESULTS
                                         PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  223         TEST NO. 2             DATE   3/21/73
VEHICLE MODEL  CUSTOM 3500                   ENGINE    350 CID 8              MFGR. CODE   46                       YR.  1972
                                                                              CURB WT.  5590                        GVW  9000

BAROMETER  29.25 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                                  WET BULB TEMP 59.0 DEG. F
REL. HUMIDITY      31 PCT.                                                   ABS. HUMIDITY 45.5 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                                1                 2
     INITIAL WT., GRAMS                             253.67            250.17
     DIFFERENCE   GRAMS                             253.46            250.12
                                                       .21               .05
     TOTAL EVAPORATIVE EMISSIONS
                                                                                .26 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                                    BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                              BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                                  1                 2                 3
     HC    SAMPLE  METER READING/SCALE               32812             55228             33221
     HC    SAMPLE  PPM                                14.5/4            64.9/3            83.2/3
     HC    BACKGRD METER READING/SCALE               1450               649               832
     HC    BACKGRD PPM                                 2.6/3             5.0/3             3.8/3
     CO    SAMPLE  METER READING/SCALE                 26                50                38
     CO    SAMPLE  PPM                                44.3/1            74.0/2            83.1/2
     CO    BACKGRD METER READING/SCALE               4022              2424              3390
     CO    BACKGRD PPM                                 1.0/2              .9/2              .9/2
     CO2   SAMPLE  METER READING/SCALE                 28                26                25
     CO2   SAMPLE  PERCENT                            62.0/2            61.4/3            84.2/3
     CO2   BACKGRD METER READING/SCALE                1.81              1.02              1.49
     CO2   BACKGRD PERCENT                             3.0/3             3.3/3             3.5/3
     NOX   SAMPLE  METER READING/SCALE                 .04               .05               .05
     NOX   SAMPLE  PPM                                94.7/3            44.5/3            88.7/3
     NOX   BACKGRD METER READING/SCALE              284.1             133.5             266.1
     NOX   BACKGRD PPM                                  .6/3             1.3/3              .1/3
                                                       1.8               3.9                .3
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                        1429               604               799
     CO2   CONCENTRATION PCT                        3818              2717              3237
     NOX   CONCENTRATION PPM                        1.77               .98              1.45
     HC    MASS GRAMS                              282.6             130.0             265.8
     CO    MASS GRAMS                               51.57             36.70             29.21
     CO2   MASS GRAMS                              278.23            333.33            238.86
     NOX   MASS GRAMS                             2040.82           1895.73           1686.27
                                                    29.71             23.00             28.30
     WEIGHTED MASS HC       10.07 GRAMS/MILE
     WEIGHTED MASS CO       78.55 GRAMS/MILE
     WEIGHTED MASS CO2     497.43 GRAMS/MILE
     WEIGHTED MASS NOX       6.42 GRAMS/MILE
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                              TABLE  A-57.      VEHICLE EMISSION RESULTS
                                           PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  224         TEST NO. 1        DATE  3/24/73                  MFGR. CODE   31              YR.  1970
VEHICLE MODEL  CUSTOM                   ENGINE   360 CID 8              CURB WT.  5000               GVW  6100

                                                                      WET BULB TEMP 57.0 DEG. F
BAROMETER  28.87 IN.HG.                                               ABS. HUMIDITY 45.1 GRAINS/LB
DRY BULB TEMP.  72.0 DEG. F
REL. HUMIDITY      36 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                  1              2
     FINAL WT.,    GRAMS                    249.35         249.45
     INITIAL WT., GRAMS                     248.77         249.35
     DIFFERENCE    GRAMS                       .58            .10

     TOTAL EVAPORATIVE EMISSIONS                                        .68 GRAMS


EXHAUST EMISSIONS
                                                                  BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                  BLOWER INLET TEMP.  110 DEG. F
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O

     BAG RESULTS
     BAG NO.                                   1              2              3
     BLOWER REVOLUTIONS                    33211          55006          33219
     HC   SAMPLE  METER READING/SCALE       18.1/4         50.4/3         82.0/3
     HC   SAMPLE  PPM                      1810            504            820
     HC   BACKGRD METER READING/SCALE        2.9/3          4.2/3          2.6/3
     HC   BACKGRD PPM                         29             42             26
     CO   SAMPLE  METER READING/SCALE       70.2/1         95.2/2         49.3/1
     CO   SAMPLE  PPM                       9392           4156           4772
     CO   BACKGRD METER READING/SCALE        5.8/2          1.0/2           .1/2
     CO   BACKGRD PPM                        167             28              3
     CO2  SAMPLE  METER READING/SCALE       89.2/2         56.9/2         85.0/2
     CO2  SAMPLE  PERCENT                   2.82           1.64           2.65
     CO2  BACKGRD METER READING/SCALE        3.4/3          3.2/3          2.5/3
     CO2  BACKGRD PERCENT                    .05            .05            .04
     NOX  SAMPLE  METER READING/SCALE       41.8/3         23.9/3         69.7/3
     NOX  SAMPLE  PPM                      125.4           71.7          209.1
     NOX  BACKGRD METER READING/SCALE        1.2/3           .8/3           .7/3
     NOX  BACKGRD PPM                        3.6            2.4            2.1

     HC   CONCENTRATION PPM                 1789            469            800
     CO   CONCENTRATION PPM                 8655           3953           4470
     CO2  CONCENTRATION PCT                 2.78           1.60           2.62
     NOX  CONCENTRATION PPM                122.8           69.7          207.5
     HC   MASS GRAMS                       64.49          27.97          28.84
     CO   MASS GRAMS                      629.75         476.36         325.34
     CO2  MASS GRAMS                     3199.57        3040.42        3017.06
     NOX  MASS GRAMS                       12.88          12.10          21.75

     WEIGHTED MASS HC       9.62 GRAMS/MILE
     WEIGHTED MASS CO     124.35 GRAMS/MILE
     WEIGHTED MASS CO2    818.13 GRAMS/MILE
     WEIGHTED MASS NOX      4.00 GRAMS/MILE
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                         TABLE A-58.         VEHICLE EMISSION RESULTS
                                     PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  229        TEST NO. 2        DATE  3/25/73                MFGR. CODE   31                 YR.  1970
VEHICLE MODEL  CUSTOM                  ENGINE   360 CID 8           CURB WT.  5000                  GVW  6100

BAROMETER  28.99 IN.HG.
DRY BULB TEMP.  75.0 DEG. F                                    WET BULB TEMP 59.0 DEG. F
REL. HUMIDITY     21 PCT.                                      ABS. HUMIDITY 28.2 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                   1             2
     INITIAL WT., GRAMS                254.62        250.83
     DIFFERENCE   GRAMS                254.08        250.77
                                          .54           .06
     TOTAL EVAPORATIVE EMISSIONS
                                                                .60 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                     BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                               BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                   1             2             3
     HC   SAMPLE  METER READING/SCALE  33260         55093         33332
     HC   SAMPLE  PPM                   17.8/4        56.3/3        85.3/3
     HC   BACKGRD METER READING/SCALE  1780           563           853
     HC   BACKGRD PPM                    1.9/3         5.2/3         2.9/3
     CO   SAMPLE  METER READING/SCALE    19            52            24
     CO   SAMPLE  PPM                   68.9/1        98.7/2        49.0/1
     CO   BACKGRD METER READING/SCALE  9004          4398          4724
     CO   BACKGRD PPM                     .7/2          .4/2         0.0/2
     CO2  SAMPLE  METER READING/SCALE    20            11             0
     CO2  SAMPLE  PERCENT               89.9/2        63.3/2        86.7/2
     CO2  BACKGRD METER READING/SCALE  2.85          1.85          2.72
     CO2  BACKGRD PERCENT                2.4/3         3.2/3         2.4/3
     NOX  SAMPLE  METER READING/SCALE   .03           .05           .03
     NOX  SAMPLE  PPM                   45.7/3        25.8/3        72.5/3
     NOX  BACKGRD METER READING/SCALE 137.1          77.4         217.5
     NOX  BACKGRD PPM                    1.8/3         1.3/3          .9/3
                                         5.4           3.9           2.7
     HC   CONCENTRATION PPM
     CO   CONCENTRATION PPM            1766           520           835
     CO2  CONCENTRATION PCT            8436          4202          4445
     NOX  CONCENTRATION PPM            2.82          1.82          2.69
     HC   MASS GRAMS                  133.3          74.2         215.5
     CO   MASS GRAMS                  63.92         31.59         30.27
     CO2  MASS GRAMS                 616.32        515.44        325.45
     NOX  MASS GRAMS                3256.86       3516.76       3113.99
                                      13.11         12.25         21.24
     WEIGHTED MASS HC       10.18 GRAMS/MILE
     WEIGHTED MASS CO      128.80 GRAMS/MILE
     WEIGHTED MASS CO2     892.29 GRAMS/MILE
     WEIGHTED MASS NOX       4.00 GRAMS/MILE
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                         TABLE A-59.      VEHICLE EMISSION RESULTS
                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  225        TEST NO. 1           DATE  3/24/73
VEHICLE MODEL  CUSTOM                     ENGINE   240 CID 6          MFGR. CODE   31              YR.  1967
                                                                      CURB WT.  5100               GVW  6000

BAROMETER  28.87 IN.HG.
DRY BULB TEMP.  76.0 DEG. F                                         WET BULB TEMP 56.0 DEG. F
REL. HUMIDITY     24 PCT.                                           ABS. HUMIDITY 34.5 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                        1            2
     INITIAL WT., GRAMS                     252.46       252.84
     DIFFERENCE   GRAMS                     250.92       252.76
                                              1.54          .08
     TOTAL EVAPORATIVE EMISSIONS
                                                                     1.62 GRAMS

EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                    BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                        1            2
     HC   SAMPLE  METER READING/SCALE       33451        55462          3
     HC   SAMPLE  PPM                        14.0/4        7.1/4      33061
     HC   BACKGRD METER READING/SCALE       1400          710          88.9/3
     HC   BACKGRD PPM                          2.5/3        4.3/3      889
     CO   SAMPLE  METER READING/SCALE         25           43            3.2/3
     CO   SAMPLE  PPM                         65.2/1       50.3/1       32
     CO   BACKGRD METER READING/SCALE       7992         4934          61.6/1
     CO   BACKGRD PPM                           .5/2         .2/2      7121
     CO2  SAMPLE  METER READING/SCALE         14            6            .3/2
     CO2  SAMPLE  PERCENT                     82.9/2       50.6/2        8
     CO2  BACKGRD METER READING/SCALE        2.57         1.43         74.5/2
     CO2  BACKGRD PERCENT                      2.4/3        2.6/3      2.25
     NOX  SAMPLE  METER READING/SCALE         .03          .04           2.5/3
     NOX  SAMPLE  PPM                         42.7/3       15.6/3        .04
     NOX  BACKGRD METER READING/SCALE       128.1         46.8          40.7/3
     NOX  BACKGRD PPM                          0.0/3        0.0/3      122.1
                                               0.0          0.0           .1/3
                                                                          .3
     HC   CONCENTRATION PPM
     CO   CONCENTRATION PPM                 1381          673
     CO2  CONCENTRATION PCT                 7523         4754          864
     NOX  CONCENTRATION PPM                 2.54         1.40         6750
     HC   MASS GRAMS                       128.1         46.8          2.23
     CO   MASS GRAMS                        50.15        40.53        121.9
     CO2  MASS GRAMS                       551.37       577.73         31.00
     NOX  MASS GRAMS                      2945.52      2683.25        488.92
                                            12.96         7.85       2545.57
                                                                       12.18
     WEIGHTED MASS HC       10.63 GRAMS/MILE
     WEIGHTED MASS CO      145.80 GRAMS/MILE
     WEIGHTED MASS CO2     720.11 GRAMS/MILE
     WEIGHTED MASS NOX       2.72 GRAMS/MILE
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                          TABLE A-60.          VEHICLE EMISSION RESULTS
                                     PROPOSED MEDIUM DUTY DRIVING SCHEDULE  —
UNIT NO.  225         TEST NO. 2
VEHICLE MODEL  CUSTOM                   DATE  3/25/73
                                        ENGINE   240 CID 6              MFGR. CODE   31
                                                                        CURB WT.  5100                    YR.  1967
                                                                                                          GVW  6000
BAROMETER  28.94 IN.HG.
DRY BULB TEMP.  75.0 DEG. F                                         WET BULB TEMP 54.0 DEG. F
REL. HUMIDITY     21 PCT.                                           ABS. HUMIDITY 28.2 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                        1               2
     INITIAL WT., GRAMS                     248.60          247.64
     DIFFERENCE   GRAMS                     246.92          247.50
                                              1.68             .14
     TOTAL EVAPORATIVE EMISSIONS
                                                                          1.82 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H20                          BLOWER INLET PRESS., G1  17.5 IN. H20
     BAG RESULTS                                                    BLOWER INLET TEMP.  110 DEG. F
     BAG NO.
     BLOWER REVOLUTIONS                           1               2
     HC    SAMPLE  METER READING/SCALE         33450           55808           3
     HC    SAMPLE  PPM                         13.9/4          64.0/3        33446
     HC    BACKGRD METER READING/SCALE         1390             640          82.7/3
     HC    BACKGRD PPM                          4.1/3           6.3/3         827
     CO    SAMPLE  METER READING/SCALE          41              63            2.0/3
     CO    SAMPLE  PPM                         65.0/1          50.6/1          20
     CO    BACKGRD METER READING/SCALE         7941            4983           60.7/1
     CO    BACKGRD PPM                          .8/2            .8/2          6919
     CO2   SAMPLE  METER READING/SCALE          23              23             .3/2
     CO2   SAMPLE  PERCENT                     79.5/2          50.0/2           8
     CO2   BACKGRD METER READING/SCALE         2.44            1.41           70.4/2
     CO2   BACKGRD PERCENT                      2.5/3           3.4/3          2.10
     NOX   SAMPLE  METER READING/SCALE          .04             .05            3.6/3
     NOX   SAMPLE  PPM                         41.1/3          15.9/3           .05
     NOX   BACKGRD METER READING/SCALE        123.3            47.7           38.4/3
     NOX   BACKGRD PPM                          .5/3            .2/3          115.2
                                                1.5              .6             .1/3
     HC    CONCENTRATION PPM                                                     .3
     CO    CONCENTRATION PPM                   1359             586
     CO2   CONCENTRATION PCT                   7498            4796            811
     NOX   CONCENTRATION PPM                   2.41            1.37           6586
     HC    MASS GRAMS                         122.2            47.2           2.06
     CO    MASS GRAMS                          49.46           35.59         115.0
     CO2   MASS GRAMS                         550.91          587.86          29.52
     NOX   MASS GRAMS                        2799.99         2650.22         483.83
                                               12.09            7.79        2393.43
     WEIGHTED MASS HC        9.82 GRAMS/MILE                                  11.37
     WEIGHTED MASS CO      146.74 GRAMS/MILE
     WEIGHTED MASS CO2     695.80 GRAMS/MILF
     WEIGHTED MASS NOX       2.60 GRAMS/MILE
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                         TABLE A-61              VEHICLE EMISSION RESULTS
                                             PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  226          TEST NO. 1          DATE  3/24/73                 MFGR. CODE   31                   YR.  1967
VEHICLE MODEL  F-250                       ENGINE    240 CID 6           CURB WT.  5100                   GVW  6000

BAROMETER  28.87 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                            WET BULB TEMP 55.0 DEG. F
REL. HUMIDITY      20 PCT.                                             ABS. HUMIDITY 28.9 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                      1             2
     FINAL WT.,   GRAMS                         251.58        250.47
     INITIAL WT., GRAMS                         251.43        250.38
     DIFFERENCE   GRAMS                            .15           .09

     TOTAL EVAPORATIVE EMISSIONS                                            .24 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                           BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                     BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                        1             2             3
     BLOWER REVOLUTIONS                         33443         55865         32945
     HC   SAMPLE  METER READING/SCALE            18.0/4        90.5/3        93.0/3
     HC   SAMPLE  PPM                           1800           905           930
     HC   BACKGRD METER READING/SCALE             2.4/3         3.0/3         2.9/3
     HC   BACKGRD PPM                              24            30            29
     CO   SAMPLE  METER READING/SCALE            66.0/1        49.6/1        61.9/1
     CO   SAMPLE  PPM                           8200          4820          7190
     CO   BACKGRD METER READING/SCALE              .2/2          .3/2          .1/2
     CO   BACKGRD PPM                               6             8             3
     CO2  SAMPLE  METER READING/SCALE            81.4/2        51.8/2        72.4/2
     CO2  SAMPLE  PERCENT                       2.51          1.47          2.18
     CO2  BACKGRD METER READING/SCALE             2.3/3         2.7/3         2.0/3
     CO2  BACKGRD PERCENT                        .03           .04           .03
     NOX  SAMPLE  METER READING/SCALE            32.3/3        15.3/3        28.5/3
     NOX  SAMPLE  PPM                           96.9          45.9          85.5
     NOX  BACKGRD METER READING/SCALE              .3/3          .3/3          .1/3
     NOX  BACKGRD PPM                              .9            .9            .3

     HC   CONCENTRATION PPM                     1782           880           907
     CO   CONCENTRATION PPM                     7747          4646          6841
     CO2  CONCENTRATION PCT                     2.49          1.44          2.15
     NOX  CONCENTRATION PPM                     96.2          45.1          85.3
     HC   MASS GRAMS                           64.68         53.32         32.44
     CO   MASS GRAMS                          567.63        548.63        493.77
     CO2  MASS GRAMS                         2879.14       2775.52       2455.19
     NOX  MASS GRAMS                            9.52          7.46          8.31

     WEIGHTED MASS HC      13.28 GRAMS/MILE
     WEIGHTED MASS CO     145.89 GRAMS/MILE
     WEIGHTED MASS CO2    721.73 GRAMS/MILE
     WEIGHTED MASS NOX      2.17 GRAMS/MILE
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TABLE A-62.

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                                   VEHICLE EMISSION RESULTS
                              PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  226        TEST NO. 2         DATE  3/25/73               MFGR. CODE   31            YR.  1967
VEHICLE MODEL  F-250                    ENGINE   240 CID 6          CURB WT.  5100             GVW  6000

BAROMETER  28.95 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                        WET BULB TEMP 65.0 DEG. F
REL. HUMIDITY      50 PCT.                                         ABS. HUMIDITY 73.1 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                  1           2
     FINAL WT.,   GRAMS                      250.00      248.28
     INITIAL WT., GRAMS                      249.97      248.19
     DIFFERENCE   GRAMS                         .03         .09

     TOTAL EVAPORATIVE EMISSIONS                                         .12 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                        BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                  BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                   1           2           3
     BLOWER REVOLUTIONS                      33290       55892       32656
     HC   SAMPLE  METER READING/SCALE         18.9/4      81.7/3      12.7/4
     HC   SAMPLE  PPM                        1890         817        1270
     HC   BACKGRD METER READING/SCALE          1.9/3       5.0/3       2.4/3
     HC   BACKGRD PPM                          19          50          24
     CO   SAMPLE  METER READING/SCALE         66.1/1      50.1/1      60.6/1
     CO   SAMPLE  PPM                        8226        4901        6897
     CO   BACKGRD METER READING/SCALE           .5/2        .4/2        .1/2
     CO   BACKGRD PPM                          14          11           3
     CO2  SAMPLE  METER READING/SCALE         81.5/2      51.5/2      72.2/2
     CO2  SAMPLE  PERCENT                     2.52        1.46        2.17
     CO2  BACKGRD METER READING/SCALE          2.4/3       3.3/3       2.2/3
     CO2  BACKGRD PERCENT                      .03         .05         .03
     NOX  SAMPLE  METER READING/SCALE         29.9/3      13.5/3      28.4/3
     NOX  SAMPLE  PPM                         89.7        40.5        85.2
     NOX  BACKGRD METER READING/SCALE          0.0/3        .2/3        .1/3
     NOX  BACKGRD PPM                          0.0          .6          .3

     HC   CONCENTRATION PPM                  1876         774        1251
     CO   CONCENTRATION PPM                  7685        4675        6495
     CO2  CONCENTRATION PCT                  2.49        1.42        2.14
     NOX  CONCENTRATION PPM                  89.7        40.0        85.0
     HC   MASS GRAMS                        67.96       47.11       44.47
     CO   MASS GRAMS                       562.11      574.11      466.05
     CO2  MASS GRAMS                      2877.50     2751.64     2429.90
     NOX  MASS GRAMS                        10.68        8.00        9.93

     WEIGHTED MASS HC      13.56 GRAMS/MILE
     WEIGHTED MASS CO     144.20 GRAMS/MILE
     WEIGHTED MASS CO2    716.53 GRAMS/MILE
     WEIGHTED MASS NOX      2.43 GRAMS/MILE
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TABLE A-63.

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                              VEHICLE EMISSION RESULTS
                         PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  227        TEST NO. 1         DATE  3/24/73
VEHICLE MODEL  1210 EIGHT               ENGINE   345 CID 8          MFGR. CODE  270          YR.  1972
                                                                    CURB WT.  5380           GVW  7500

BAROMETER  28.87 IN.HG.
DRY BULB TEMP.  76.0 DEG. F                                  WET BULB TEMP 55.0 DEG. F
REL. HUMIDITY     22 PCT.                                    ABS. HUMIDITY 30.5 GRAINS/LB

EVAPORATIVE EMISSIONS

    CANISTER                              1           2
    FINAL WT.,   GRAMS                 253.70      250.29
    INITIAL WT., GRAMS                 252.40      250.24
    DIFFERENCE   GRAMS                   1.30         .05

    TOTAL EVAPORATIVE EMISSIONS
                                                            1.35 GRAMS

EXHAUST EMISSIONS

    BLOWER DIF. PRESS., G2,  17.5 IN. H20                 BLOWER INLET PRESS., G1  17.5 IN. H20
                                                          BLOWER INLET TEMP.  112 DEG. F
    BAG RESULTS
    BAG NO.                                   1            2            3
    BLOWER REVOLUTIONS                      33673        55935        32927
    HC   SAMPLE  METER READING/SCALE         10.9/4       31.0/3       42.3/3
    HC   SAMPLE  PPM                        1090          310          423
    HC   BACKGRD METER READING/SCALE          4.1/3        4.0/3        2.7/3
    HC   BACKGRD PPM                          41           40           27
    CO   SAMPLE  METER READING/SCALE         50.4/1       55.8/2       91.9/2
    CO   SAMPLE  PPM                        4950         1984         3937
    CO   BACKGRD METER READING/SCALE          0.0/2        0.0/2        0.0/2
    CO   BACKGRD PPM                           0            0            0
    CO2  SAMPLE  METER READING/SCALE         70.3/2       74.0/3       63.7/2
    CO2  SAMPLE  PERCENT                     2.10         1.27         1.87
    CO2  BACKGRD METER READING/SCALE          2.9/3        3.2/3        3.3/3
    CO2  BACKGRD PERCENT                      .04          .05          .05
    NOX  SAMPLE  METER READING/SCALE         76.9/3       33.7/3       83.3/3
    NOX  SAMPLE  PPM                        230.7        101.1        249.9
    NOX  BACKGRD METER READING/SCALE           .3/3         .8/3         .5/3
    NOX  BACKGRD PPM                            .9          2.4          1.5

    HC   CONCENTRATION PPM                   1057          274          401
    CO   CONCENTRATION PPM                   4716         1922         3768
    CO2  CONCENTRATION PCT                   2.07         1.23         1.83
    NOX  CONCENTRATION PPM                  230.0         99.0        248.7
    HC   MASS GRAMS                          38.50        16.60        14.26
    CO   MASS GRAMS                         346.69       234.66       270.86
    CO2  MASS GRAMS                        2399.69      2376.71      2075.29
    NOX  MASS GRAMS                          22.97        16.42        24.29

    WEIGHTED MASS HC       5.50 GRAMS/MILE
    WEIGHTED MASS CO      71.75 GRAMS/MILE
    WEIGHTED MASS CO2    612.20 GRAMS/MILE
    WEIGHTED MASS NOX      5.35 GRAMS/MILE
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TABLE A-64. VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

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UNIT NO.  227        TEST NO. 2          DATE  3/25/73              MFGR. CODE  270          YR.  1972
VEHICLE MODEL  1210 EIGHT                ENGINE   345 CID 8         CURB WT.  5380           GVW  7500

BAROMETER  28.95 IN.HG.
DRY BULB TEMP.   77.0 DEG. F                                     WET BULB TEMP 65.0 DEG. F
REL. HUMIDITY      50 PCT.                                       ABS. HUMIDITY 73.1 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                       1            2
     FINAL WT.,   GRAMS                         249.72       246.67
     INITIAL WT., GRAMS                         249.58       246.55
     DIFFERENCE   GRAMS                            .14          .12

     TOTAL EVAPORATIVE EMISSIONS                                          .26 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H20                       BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                 BLOWER INLET TEMP.  112 DEG. F
     BAG RESULTS
     BAG NO.                                        1            2            3
     BLOWER REVOLUTIONS                         33265        55894        32951
     HC   SAMPLE  METER READING/SCALE          11.9/4       22.4/3       38.1/3
     HC   SAMPLE  PPM                            1190          224          381
     HC   BACKGRD METER READING/SCALE           2.9/3        3.8/3        2.2/3
     HC   BACKGRD PPM                              29           38           22
     CO   SAMPLE  METER READING/SCALE          51.4/1       44.4/2       89.1/2
     CO   SAMPLE  PPM                            5117         1498         3757
     CO   BACKGRD METER READING/SCALE            .7/2         .4/2         .2/2
     CO   BACKGRD PPM                              20           11            6
     CO2  SAMPLE  METER READING/SCALE          70.2/2       45.8/2       62.5/2
     CO2  SAMPLE  PERCENT                        2.10         1.28         1.83
     CO2  BACKGRD METER READING/SCALE           2.9/3        1.6/3        2.9/3
     CO2  BACKGRD PERCENT                         .04          .02          .04
     NOX  SAMPLE  METER READING/SCALE          77.7/3       35.5/3       85.1/3
     NOX  SAMPLE  PPM                           233.1        106.5        255.3
     NOX  BACKGRD METER READING/SCALE            .3/3         .9/3         .5/3
     NOX  BACKGRD PPM                              .9          2.7          1.5

     HC   CONCENTRATION PPM                      1167          190          363
     CO   CONCENTRATION PPM                      4812         1427         3560
     CO2  CONCENTRATION PCT                      2.06         1.26         1.79
     NOX  CONCENTRATION PPM                     232.4        104.1        254.0
     HC   MASS GRAMS                            42.09        11.52        12.96
     CO   MASS GRAMS                           350.52       174.67       256.83
     CO2  MASS GRAMS                          2373.42      2429.86      2040.90
     NOX  MASS GRAMS                            27.56        20.74        29.84

     WEIGHTED MASS HC       4.93 GRAMS/MILE
     WEIGHTED MASS CO      62.91 GRAMS/MILE
     WEIGHTED MASS CO2    615.17 GRAMS/MILE
     WEIGHTED MASS NOX      6.61 GRAMS/MILE
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                       TABLE A-65.         VEHICLE EMISSION RESULTS
                                       PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  228        TEST NO. 1          DATE  3/27/73                MFGR. CODE   43              YR.  1972
VEHICLE MODEL  CUSTOM 220                ENGINE   350 CID 8           CURB WT.  4800               GVW  6200

BAROMETER  29.05 IN.HG.                                              WET BULB TEMP 62.0 DEG. F
DRY BULB TEMP.  72.0 DEG. F                                          ABS. HUMIDITY 67.0 GRAINS/LB
REL. HUMIDITY     54 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                  1          2
     FINAL WT.,   GRAMS                   252.08     248.78
     INITIAL WT., GRAMS                   250.53     248.75
     DIFFERENCE   GRAMS                     1.55        .03

     TOTAL EVAPORATIVE EMISSIONS                                1.58 GRAMS

EXHAUST EMISSIONS
                                                                     BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                           BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                   1          2          3
     BLOWER REVOLUTIONS                    33228      55817      32362
     HC   SAMPLE  METER READING/SCALE     44.9/3     24.3/3     38.0/3
     HC   SAMPLE  PPM                      449        243        380
     HC   BACKGRD METER READING/SCALE      5.8/3      7.9/3      7.4/3
     HC   BACKGRD PPM                       58         79         74
     CO   SAMPLE  METER READING/SCALE     88.6/2     52.4/2     67.9/2
     CO   SAMPLE  PPM                     3726       1834       2560
     CO   BACKGRD METER READING/SCALE      1.6/2       .6/2       .1/2
     CO   BACKGRD PPM                       45         17          3
     CO2  SAMPLE  METER READING/SCALE     61.9/2     64.6/3     91.1/3
     CO2  SAMPLE  PERCENT                 1.81       1.08       1.64
     CO2  BACKGRD METER READING/SCALE      2.1/3      2.3/3      2.7/3
     CO2  BACKGRD PERCENT                  .03        .03        .04
     NOX  SAMPLE  METER READING/SCALE     91.1/3     44.5/3     97.7/3
     NOX  SAMPLE  PPM                    273.3      133.5      293.1
     NOX  BACKGRD METER READING/SCALE       .1/3       .5/3       .3/3
     NOX  BACKGRD PPM                       .3        1.5         .9

     HC   CONCENTRATION PPM                401        172        317
     CO   CONCENTRATION PPM               3494       1748       2432
     CO2  CONCENTRATION PCT               1.78       1.05       1.61
     NOX  CONCENTRATION PPM              273.0      132.1      292.3
     HC   MASS GRAMS                     14.54      10.46      11.19
     CO   MASS GRAMS                    256.00     215.20     173.55
     CO2  MASS GRAMS                   2060.04    2048.48    1815.87
     NOX  MASS GRAMS                     31.67      25.75      33.02

     WEIGHTED MASS HC       3.08 GRAMS/MILE
     WEIGHTED MASS CO      56.56 GRAMS/MILE
     WEIGHTED MASS CO2    529.25 GRAMS/MILE
     WEIGHTED MASS NOX      7.76 GRAMS/MILE
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                              TABLE A-66.          VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  228          TEST NO. 2
VEHICLE MODEL  CUSTOM 200            DATE  3/28/73
                                     ENGINE   250 CID 8                MFGR. CODE   43               YR.  1972
                                                                       CURB WT.  4800                GVW  6200
BAROMETER  28.98 IN.HG.
DRY BULB TEMP.  76.0 DEG. F
REL. HUMIDITY      56 PCT.                                        WET BULB TEMP 66.0 DEG. F
                                                                  ABS. HUMIDITY 79.7 GRAINS/LB
EVAPORATIVE EMISSIONS

    CANISTER
    FINAL WT.,    GRAMS                     1
    INITIAL WT., GRAMS                   251.23          2
    DIFFERENCE    GRAMS                  249.83       250.32
                                           1.40       250.27
    TOTAL EVAPORATIVE EMISSIONS                          .05

                                                                   1.45 GRAMS
EXHAUST EMISSIONS


    BLOWER DIF. PRESS., G2,  17.5 IN. H2O                 BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                          BLOWER INLET TEMP.  110 DEG. F
    BAG RESULTS
    BAG NO.
    BLOWER REVOLUTIONS                      1            2           3
    HC    SAMPLE  METER READING/SCALE    33815        55865       33527
    HC    SAMPLE  PPM                     51.3/3       25.5/3      32.8/3
    HC    BACKGRD METER READING/SCALE    513          255         328
    HC    BACKGRD PPM                      7.3/3        8.2/3       1.3/3
    CO    SAMPLE  METER READING/SCALE     73           82          13
    CO    SAMPLE  PPM                     92.3/2       54.7/2      58.7/2
    CO    BACKGRD METER READING/SCALE   3963         1935        2116
    CO    BACKGRD PPM                      1.1/2        1.2/2        .9/2
    CO2   SAMPLE  METER READING/SCALE     31           34          11
    CO2   SAMPLE  PERCENT                 65.0/2       63.8/3      86.1/3
    CO2   BACKGRD METER READING/SCALE      1.91         1.07        1.53
    CO2   BACKGRD PERCENT                  2.9/3        2.6/3       3.2/3
    NOX   SAMPLE  METER READING/SCALE       .04          .04         .05
    NOX   SAMPLE  PPM                     87.1/3       36.9/3      79.5/3
    NOX   BACKGRD METER READING/SCALE    261.3        110.7       238.5
    NOX   BACKGRD PPM                       .2/3        0.0/3       0.0/3
                                            .6          0.0         0.0
    HC    CONCENTRATION PPM
    CO    CONCENTRATION PPM              453          181         317
    CO2   CONCENTRATION PCT             3720         1830        2005
    NOX   CONCENTRATION PPM                1.88         1.03        1.99
    HC    MASS GRAMS                     260.8        110.7       238.5
    CO    MASS GRAMS                      16.68        11.01       11.57
    CO2   MASS GRAMS                     276.66       224.83      147.89
    NOX   MASS GRAMS                    2206.18      2006.97     1737.91
                                          32.58        22.85       29.54
    WEIGHTED MASS HC       3.30 GRAMS/MILE
    WEIGHTED MASS CO      57.08 GRAMS/MILE
    WEIGHTED MASS CO2    526.16 GRAMS/MILE
    WEIGHTED MASS NOX      7.16 GRAMS/MILE
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                        TABLE A-67.            VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  229        TEST NO. 1           DATE  3/28/73                MFGR. CODE  270               YR.  1967
VEHICLE MODEL  1200                       ENGINE   241 CID 6           CURB WT.  4820                GVW  7300

BAROMETER  28.95 IN.HG.                                             WET BULB TEMP 65.0 DEG. F
DRY BULB TEMP.  78.0 DEG. F                                         ABS. HUMIDITY 71.5 GRAINS/LB
REL. HUMIDITY     47 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                               1              2
     FINAL WT.,   GRAMS                249.74         250.69
     INITIAL WT., GRAMS                249.61         250.59
     DIFFERENCE   GRAMS                   .13            .10

     TOTAL EVAPORATIVE EMISSIONS                                  .23 GRAMS


EXHAUST EMISSIONS
                                                                    BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                1              2              3
     BLOWER REVOLUTIONS                 33714          55335          32223
     HC   SAMPLE  METER READING/SCALE    20.5/4         88.3/3         13.4/4
     HC   SAMPLE  PPM                   2050            883           1340
     HC   BACKGRD METER READING/SCALE     4.8/3          4.9/3          4.4/3
     HC   BACKGRD PPM                     48             49             44
     CO   SAMPLE  METER READING/SCALE    59.5/1         48.8/1         59.3/1
     CO   SAMPLE  PPM                   6658           4692           6615
     CO   BACKGRD METER READING/SCALE     1.7/2          1.8/2           .6/2
     CO   BACKGRD PPM                     48             51             17
     CO2  SAMPLE  METER READING/SCALE    96.8/2         52.8/2         82.8/2
     CO2  SAMPLE  PERCENT                3.13           1.50           2.57
     CO2  BACKGRD METER READING/SCALE     3.1/3          2.8/3          1.7/3
     CO2  BACKGRD PERCENT                 .04            .04            .02
     NOX  SAMPLE  METER READING/SCALE    57.6/3         14.7/3         42.3/3
     NOX  SAMPLE  PPM                  172.8           44.1          126.9
     NOX  BACKGRD METER READING/SCALE     1.0/3           .9/3           .4/3
     NOX  BACKGRD PPM                     3.0            2.7            1.2

     HC   CONCENTRATION PPM             2016            841           1307
     CO   CONCENTRATION PPM             6121           4442           6174
     CO2  CONCENTRATION PCT             3.10           1.47           2.55
     NOX  CONCENTRATION PPM            170.7           41.8          126.0
     HC   MASS GRAMS                   73.97          50.67          45.83
     CO   MASS GRAMS                  453.42         540.13         437.16
     CO2  MASS GRAMS                 3627.69        2817.25        2849.[illegible]7
     NOX  MASS GRAMS                   20.43           8.21          1[illegible]

     WEIGHTED MASS HC     14.48 GRAMS/MILE
     WEIGHTED MASS CO    131.24 GRAMS/MILE
     WEIGHTED MASS CO2   800.17 GRAMS/MILE
     WEIGHTED MASS NOX     3.36 GRAMS/MILE
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                        TABLE A-68.               VEHICLE EMISSION RESULTS
                                             PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  229         TEST NO. 2           DATE  3/29/73                   MFGR. CODE  270                  YR.  1967
VEHICLE MODEL  1200                        ENGINE   241 CID 6              CURB WT.  4820                   GVW  7300

BAROMETER  29.01 IN.HG.
DRY BULB TEMP.  75.0 DEG. F                                               WET BULB TEMP 65.0 DEG. F
REL. HUMIDITY     56 PCT.                                                 ABS. HUMIDITY 76.3 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                        1           2
     FINAL WT.,   GRAMS                           250.86      248.65
     INITIAL WT., GRAMS                           250.80      248.56
     DIFFERENCE   GRAMS                              .06         .09

     TOTAL EVAPORATIVE EMISSIONS
                                                                          .15 GRAMS

EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H20                                BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                          BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                         1           2           3
     BLOWER REVOLUTIONS                            33512       56048       33344
     HC    SAMPLE  METER READING/SCALE             19.7/4      79.4/3      11.0/4
     HC    SAMPLE  PPM                             1970        794         1100
     HC    BACKGRD METER READING/SCALE              8.1/3       8.2/3       4.0/3
     HC    BACKGRD PPM                               81          82          40
     CO    SAMPLE  METER READING/SCALE             58.6/1      48.4/1      55.2/1
     CO    SAMPLE  PPM                             6468        4630        5795
     CO    BACKGRD METER READING/SCALE              2.2/2       1.4/2        .8/2
     CO    BACKGRD PPM                               62          40          23
     CO2   SAMPLE  METER READING/SCALE             95.7/2      59.5/2      88.4/2
     CO2   SAMPLE  PERCENT                         3.13        1.72        2.79
     CO2   BACKGRD METER READING/SCALE              3.4/3       3.2/3       2.0/3
     CO2   BACKGRD PERCENT                          .05         .05         .03
     NOX   SAMPLE  METER READING/SCALE             49.3/3      16.5/3      47.0/3
     NOX   SAMPLE  PPM                            149.4        49.5       141.0
     NOX   BACKGRD METER READING/SCALE               .7/3        .8/3        .1/3
     NOX   BACKGRD PPM                              2.1         2.4          .3

     HC    CONCENTRATION PPM                       1913         726        1070
     CO    CONCENTRATION PPM                       5918        4360        5363
     CO2   CONCENTRATION PCT                       3.09        1.69        2.77
     NOX   CONCENTRATION PPM                      147.9        47.5       140.8
     HC    MASS GRAMS                              69.91       44.36       38.92
     CO    MASS GRAMS                             436.73      538.11      393.79
     CO2   MASS GRAMS                            3605.15     3284.89     3207.07
     NOX   MASS GRAMS                              18.04        9.69       17.09

     WEIGHTED MASS HC      12.88 GRAMS/MILE
     WEIGHTED MASS CO     126.71 GRAMS/MILE
     WEIGHTED MASS CO2    888.42 GRAMS/MILE
     WEIGHTED MASS NOX      3.63 GRAMS/MILE
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                              TABLE A-69.
                                                   VEHICLE EMISSION RESULTS
                                             PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  230          TEST NO. 1
VEHICLE MODEL  20                             DATE  3/28/73
                                              ENGINE   250 CID 6              MFGR. CODE   43
                                                                              CURB WT.  6000                 YR.  1967
                                                                                                             GVW  7500
BAROMETER  28.93 IN.HG.
DRY BULB TEMP.  78.0 DEG. F
REL. HUMIDITY      51 PCT.                                                  WET BULB TEMP 66.0 DEG. F
                                                                            ABS. HUMIDITY 76.4 GRAINS/LB
EVAPORATIVE EMISSIONS

    CANISTER
    FINAL WT.,    GRAMS                             1             2
    INITIAL WT., GRAMS                          252.30        254.18
    DIFFERENCE   GRAMS                          250.44        254.03
                                                  1.86           .15
    TOTAL EVAPORATIVE EMISSIONS
                                                                                  2.01 GRAMS
EXHAUST EMISSIONS


    BLOWER DIF. PRESS., G2,  17.5 IN. H20                              BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                       BLOWER INLET TEMP.  110 DEG. F
    BAG RESULTS
    BAG NO.
    BLOWER REVOLUTIONS                             1              2              3
    HC    SAMPLE  METER READING/SCALE          33883          55834          33375
    HC    SAMPLE  PPM                           18.0/4         78.5/3         91.8/3
    HC    BACKGRD METER READING/SCALE          1800            785            918
    HC    BACKGRD PPM                             3.2/3          3.5/3          2.9/3
    CO    SAMPLE  METER READING/SCALE            32             35             29
    CO    SAMPLE  PPM                           61.0/1         95.1/2         53.2/1
    CO    BACKGRD METER READING/SCALE          6986           4149           5429
    CO    BACKGRD PPM                             0.0/2           .3/2           .1/2
    CO2   SAMPLE  METER READING/SCALE             0              8              3
    CO2   SAMPLE  PERCENT                       78.5/2         43.5/2         66.1/2
    CO2   BACKGRD METER READING/SCALE           2.40           1.21           1.95
    CO2   BACKGRD PERCENT                         2.3/3          1.7/3          1.6/3
    NOX   SAMPLE  METER READING/SCALE            .03            .02            .02
    NOX   SAMPLE  PPM                           68.9/3         37.3/3         68.8/3
    NOX   BACKGRD METER READING/SCALE          206.7          111.9          206.4
    NOX   BACKGRD PPM                             0.0/3           .3/3           .1/3
                                                  0.0             .9             .3
    HC    CONCENTRATION PPM                    1776            754            895
    CO    CONCENTRATION PPM                    6548           3978           5135
    CO2   CONCENTRATION PCT                    2.38           1.18           1.93
    NOX   CONCENTRATION PPM                   206.7          111.1          206.2
    HC    MASS GRAMS                          65.43          45.81          32.47
    CO    MASS GRAMS                         487.18         487.64         376.26
    CO2   MASS GRAMS                        2793.03        2293.62        2236.47
    NOX   MASS GRAMS                          25.43          22.53          24.99

    WEIGHTED MASS HC      12.33 GRAMS/MILE
    WEIGHTED MASS CO     121.55 GRAMS/MILE
    WEIGHTED MASS CO2    635.92 GRAMS/MILE
    WEIGHTED MASS NOX      6.36 GRAMS/MILE
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TABLE A-70. VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO. 230 TEST NO. 2
VEHICLE MODEL 20
DATE 3/29/73
ENGINE 250 CID 6
MFGR. CODE 43
CURB WT. 6000
YR. 1967
GVW 7500

BAROMETER 24.00 IN.HG.
DRY BULB TEMP. 79.0 DEG. F
REL. HUMIDITY 39 PCT.
WET BULB TEMP 63.0 DEG. F
ABS. HUMIDITY 60.2 GRAINS/LB

EVAPORATIVE EMISSIONS

CANISTER	1	2
FINAL WT., GRAMS	252.21	249.89
INITIAL WT., GRAMS	250.69	249.19
DIFFERENCE GRAMS	1.52	.70

TOTAL EVAPORATIVE EMISSIONS 2.22 GRAMS

EXHAUST EMISSIONS

BLOWER DIF. PRESS., G2, 17.6 IN. H2O
BLOWER INLET PRESS., G1 17.6 IN. H2O
BLOWER INLET TEMP. 112 DEG. F

BAG RESULTS

BAG NO.	1	2	3
BLOWER REVOLUTIONS	33750	55940	33742
HC SAMPLE METER READING/SCALE	16.1/4	83.8/3	86.2/3
HC SAMPLE PPM	1610	838	862
HC BACKGRD METER READING/SCALE	4.8/3	5.6/3	4.7/3
HC BACKGRD PPM	48	56	47
CO SAMPLE METER READING/SCALE	56.2/1	45.2/2	49.8/1
CO SAMPLE PPM	5986	4156	4852
CO BACKGRD METER READING/SCALE	.2/1	.5/2	.5/2
CO BACKGRD PPM	12	14	14
CO2 SAMPLE METER READING/SCALE	71.0/2	41.5/2	62.0/2
CO2 SAMPLE PERCENT	2.13	1.14	1.81
CO2 BACKGRD METER READING/SCALE	2.5/3	2.5/3	2.3/3
CO2 BACKGRD PERCENT	.04	.04	.03
NOX SAMPLE METER READING/SCALE	67.0/3	34.5/3	72.1/3
NOX SAMPLE PPM	201.0	103.5	216.3
NOX BACKGRD METER READING/SCALE	.5/3	1.7/3	.8/3
NOX BACKGRD PPM	1.5	5.1	2.4
HC CONCENTRATION PPM	1572	789	823
CO CONCENTRATION PPM	5657	4000	4611
CO2 CONCENTRATION PCT	2.10	1.11	1.78
NOX CONCENTRATION PPM	199.8	99.0	214.3
HC MASS GRAMS	57.62	47.92	30.17
CO MASS GRAMS	418.62	490.62	341.14
CO2 MASS GRAMS	2450.83	2155.50	2081.51
NOX MASS GRAMS	22.71	18.66	24.36

WEIGHTED MASS HC	11.99 GRAMS/MILE
WEIGHTED MASS CO	115.34 GRAMS/MILE
WEIGHTED MASS CO2	586.11 GRAMS/MILE
WEIGHTED MASS NOX	5.64 GRAMS/MILE

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                 TABLE A-71.            VEHICLE EMISSION RESULTS
                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  231       TEST NO. 1        DATE  3/30/73               MFGR. CODE   31               YR.  1965
VEHICLE MODEL  350                    ENGINE   240 CID 6          CURB WT.  7120                GVW 10000

BAROMETER  28.98 IN.HG.                                         WET BULB TEMP 66.0 DEG. F
DRY BULB TEMP.  75.0 DEG. F                                     ABS. HUMIDITY 81.3 GRAINS/LB
REL. HUMIDITY     59 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                     1              2
     FINAL WT.,    GRAMS                       251.56         248.60
     INITIAL WT., GRAMS                        250.86         248.36
     DIFFERENCE    GRAMS                          .70            .24

     TOTAL EVAPORATIVE EMISSIONS
                                                                        .94 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                      BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                BLOWER INLET TEMP.  108 DEG. F
     BAG RESULTS
     BAG NO.                                       1              2              3
     BLOWER REVOLUTIONS                        33304          56583          32948
     HC    SAMPLE  METER READING/SCALE          20.9/4         13.7/4         19.4/4
     HC    SAMPLE  PPM                         2090           1370           1940
     HC    BACKGRD METER READING/SCALE           3.9/3          4.4/3          4.5/3
     HC    BACKGRD PPM                           39             44             45
     CO    SAMPLE  METER READING/SCALE          74.4/1         53.7/1         64.4/1
     CO    SAMPLE  PPM                        10782           5519           7790
     CO    BACKGRD METER READING/SCALE           1.2/2          1.7/2          1.3/2
     CO    BACKGRD PPM                           34             48             37
     CO2   SAMPLE  METER READING/SCALE          73.5/2         48.5/2         67.0/2
     CO2   SAMPLE  PERCENT                      2.22           1.36           1.98
     CO2   BACKGRD METER READING/SCALE           2.3/3          1.9/3          2.2/3
     CO2   BACKGRD PERCENT                       .03            .03            .03
     NOX   SAMPLE  METER READING/SCALE          57.4/3         40.1/3         62.4/3
     NOX   SAMPLE  PPM                         172.2          120.3          187.2
     NOX   BACKGRD METER READING/SCALE            .3/3           .9/3          1.0/3
     NOX   BACKGRD PPM                            .9            2.7            3.0

     HC    CONCENTRATION PPM                   2061           1333           1905
     CO    CONCENTRATION PPM                  10090           5228           7314
     CO2   CONCENTRATION PCT                    2.19           1.34           1.96
     NOX   CONCENTRATION PPM                   171.5          118.0          184.9
     HC    MASS GRAMS                           75.05          82.44          68.62
     CO    MASS GRAMS                          741.77         652.99         531.97
     CO2   MASS GRAMS                         2544.72        2642.75        2248.93
     NOX   MASS GRAMS                           21.35          24.95          22.76

     WEIGHTED MASS HC      20.51 GRAMS/MILE
     WEIGHTED MASS CO     170.02 GRAMS/MILE
     WEIGHTED MASS CO2    669.18 GRAMS/MILE
     WEIGHTED MASS NOX      6.28 GRAMS/MILE
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                    TABLE A-72.         VEHICLE EMISSION RESULTS
                                 PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  241        TEST NO. 2           DATE  4/ 3/74               MFGR. CODE   31              YR.  1965
VEHICLE MODEL  150                        ENGINE   240 CID 6          CURB WT.  7120               GVW 10000

BAROMETER  29.06 IN.HG.                                               WET BULB TEMP 57.0 DEG. F
DRY BULB TEMP.  74.0 DEG. F                                           ABS. HUMIDITY 41.9 GRAINS/LB
REL. HUMIDITY      32 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                   1              2
     FINAL WT.,   GRAMS                    245.52         248.06
     INITIAL WT., GRAMS                    244.71         247.74
     DIFFERENCE   GRAMS                       .81            .32

     TOTAL EVAPORATIVE EMISSIONS                                        1.13 GRAMS


EXHAUST EMISSIONS
                                                                      BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                            BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                    1              2              3
     BLOWER REVOLUTIONS                    341[illegible]          56129          33329
     HC    SAMPLE  METER READING/SCALE     21.4/4         15.1/4         17.7/4
     HC    SAMPLE  PPM                     2140           1510           1770
     HC    BACKGRD METER READING/SCALE      2.4/3          4.5/3          3.0/3
     HC    BACKGRD PPM                       24             45             30
     CO    SAMPLE  METER READING/SCALE     73.1/1         59.0/1         69.7/1
     CO    SAMPLE  PPM                    10327           6551           9240
     CO    BACKGRD METER READING/SCALE       .4/2           .8/2           .7/2
     CO    BACKGRD PPM                       11             23             20
     CO2   SAMPLE  METER READING/SCALE     73.0/2         41.5/2         51.5/2
     CO2   SAMPLE  PERCENT                 2.20           1.14           1.79
     CO2   BACKGRD METER READING/SCALE      2.7/3          2.7/3          2.8/3
     CO2   BACKGRD PERCENT                  .04            .04            .04
     NOX   SAMPLE  METER READING/SCALE     67.6/3         30.8/3         41.2/3
     NOX   SAMPLE  PPM                    202.8           92.4          123.6
     NOX   BACKGRD METER READING/SCALE      2.7/3          1.1/3          1.8/3
     NOX   BACKGRD PPM                      8.1            3.3            5.4

     HC    CONCENTRATION PPM               2122           1471           1746
     CO    CONCENTRATION PPM               9776           6321           8812
     CO2   CONCENTRATION PCT               2.17           1.11           1.76
     NOX   CONCENTRATION PPM              196.7           89.6          119.3
     HC    MASS GRAMS                     79.02          90.18          63.55
     CO    MASS GRAMS                    734.98         782.08         647.38
     CO2   MASS GRAMS                   2575.34        2171.20        2042.05
     NOX   MASS GRAMS                     21.03          15.75          12.46

     WEIGHTED MASS HC      21.48 GRAMS/MILE
     WEIGHTED MASS CO     195.62 GRAMS/MILE
     WEIGHTED MASS CO2    592.34 GRAMS/MILE
     WEIGHTED MASS NOX      4.25 GRAMS/MILE
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                    TABLE A-73.           VEHICLE EMISSION RESULTS
                                    PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  232        TEST NO. 1          DATE  4/ 3/73                 MFGR. CODE   31                YR.  1971
VEHICLE MODEL  F-350 CUSTOM              ENGINE   360 CID 8            CURB WT.  7210                GVW 10000

BAROMETER  29.32 IN.HG.
DRY BULB TEMP.  68.0 DEG. F                                          WET BULB TEMP 51.5 DEG. F
REL. HUMIDITY      26 PCT.                                           ABS. HUMIDITY 28.1 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                      1              2
     FINAL WT.,   GRAMS                         254.27         250.25
     INITIAL WT., GRAMS                         252.83         249.96
     DIFFERENCE   GRAMS                           1.44            .29

     TOTAL EVAPORATIVE EMISSIONS                                                1.73 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                           BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                     BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                       1              2              3
     BLOWER REVOLUTIONS                          32929          55771          32955
     HC   SAMPLE  METER READING/SCALE            27.5/4         57.2/3         84.9/3
     HC   SAMPLE  PPM                            2750            572            849
     HC   BACKGRD METER READING/SCALE             3.3/3          3.3/3          3.1/3
     HC   BACKGRD PPM                              33             33             31
     CO   SAMPLE  METER READING/SCALE            81.2/1         70.3/2         88.4/2
     CO   SAMPLE  PPM                           13599           2683           3713
     CO   BACKGRD METER READING/SCALE              .4/2           .3/2           .1/2
     CO   BACKGRD PPM                              11              8              3
     CO2  SAMPLE  METER READING/SCALE            76.2/2         55.0/2         69.0/2
     CO2  SAMPLE  PERCENT                         2.32           1.57           2.05
     CO2  BACKGRD METER READING/SCALE             3.2/3          2.7/3          3.4/3
     CO2  BACKGRD PERCENT                          .05            .04            .05
     NOX  SAMPLE  METER READING/SCALE            41.3/3         57.8/3         99.8/3
     NOX  SAMPLE  PPM                           123.9          173.4          299.4
     NOX  BACKGRD METER READING/SCALE             3.0/3          2.8/3          1.7/3
     NOX  BACKGRD PPM                             9.0            8.4            5.1

     HC   CONCENTRATION PPM                      2727            544            824
     CO   CONCENTRATION PPM                     12870           2572           3533
     CO2  CONCENTRATION PCT                       2.28           1.54           2.01
     NOX  CONCENTRATION PPM                     117.5          166.2          295.2
     HC   MASS GRAMS                             99.02          33.44          29.94
     CO   MASS GRAMS                            943.63         319.34         259.22
     CO2  MASS GRAMS                           2643.99        3020.38        2333.72
     NOX  MASS GRAMS                             11.60          27.78          29.17

     WEIGHTED MASS HC      12.41 GRAMS/MILE
     WEIGHTED MASS CO     116.38 GRAMS/MILE
     WEIGHTED MASS CO2    731.67 GRAMS/MILE
     WEIGHTED MASS NOX      6.59 GRAMS/MILE
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                         TABLE A-74.          VEHICLE EMISSION RESULTS
                                           PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  232         TEST NO. 2          DATE  4/ 4/73                     MFGR. CODE   31                YR.  1971
VEHICLE MODEL  F-350 CUSTOM               ENGINE   360 CID 8                CURB WT.  7210                 GVW 10000

BAROMETER  29.45 IN.HG.
DRY BULB TEMP.  66.0 DEG. F                                         WET BULB TEMP 50.0 DEG. F
REL. HUMIDITY     28 PCT.                                           ABS. HUMIDITY 27.7 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                    1              2
     FINAL WT.,    GRAMS                      254.54         253.83
     INITIAL WT., GRAMS                       253.28         253.03
     DIFFERENCE   GRAMS                         1.26            .80

     TOTAL EVAPORATIVE EMISSIONS                                        2.06 GRAMS

EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                    BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                     1              2              3
     BLOWER REVOLUTIONS                      33093          55858          33082
     HC    SAMPLE  METER READING/SCALE        27.8/4         61.7/3         92.4/3
     HC    SAMPLE  PPM                       2780            617            924
     HC    BACKGRD METER READING/SCALE         2.2/3          2.0/3          2.2/3
     HC    BACKGRD PPM                         22             20             22
     CO    SAMPLE  METER READING/SCALE        77.8/1         73.5/2         96.6/2
     CO    SAMPLE  PPM                      12089           2851           4251
     CO    BACKGRD METER READING/SCALE         3.1/2          1.3/2           .9/2
     CO    BACKGRD PPM                         88             37             25
     CO2   SAMPLE  METER READING/SCALE        66.0/2         59.0/2         75.5/2
     CO2   SAMPLE  PERCENT                    1.95           1.71           2.29
     CO2   BACKGRD METER READING/SCALE         3.1/3          2.9/3          3.2/3
     CO2   BACKGRD PERCENT                     .04            .04            .05
     NOX   SAMPLE  METER READING/SCALE        36.7/3         64.7/3         31.8/4
     NOX   SAMPLE  PPM                      110.1          194.1          318.0
     NOX   BACKGRD METER READING/SCALE         .7/3           1.3/3          1.2/3
     NOX   BACKGRD PPM                         2.1            3.9            3.6

     HC    CONCENTRATION PPM                 2764            600            907
     CO    CONCENTRATION PPM                11462           2701           4006
     CO2   CONCENTRATION PCT                 1.91           1.67           2.25
     NOX   CONCENTRATION PPM                108.5          190.8          315.1
     HC    MASS GRAMS                       101.33          37.14          33.23
     CO    MASS GRAMS                       848.51         337.48         296.46
     CO2   MASS GRAMS                      2237.86        3298.32        2633.81
     NOX   MASS GRAMS                        10.80          32.04          31.35

     WEIGHTED MASS HC      13.29 GRAMS/MILE
     WEIGHTED MASS CO     116.18 GRAMS/MILE
     WEIGHTED MASS CO2    748.25 GRAMS/MILE
     WEIGHTED MASS NOX      7.27 GRAMS/MILE
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                              TABLE  A-75.            VEHICLE EMISSION RESULTS
                                              PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  233        TEST NO. 1          DATE  4/ 4/73                                               
VEHICLE MODEL  20                        ENGINE   307 CID 8             MFGR. CODE   43              YR.  1968
                                                                        CURB WT.  4190               GVW  7500

BAROMETER  29.32 IN.HG.
DRY BULB TEMP.  68.0 DEG. F                                             WET BULB TEMP 52.0 DEG. F
REL. HUMIDITY     30 PCT.                                               ABS. HUMIDITY 31.9 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                      1            2
     FINAL WT.,   GRAMS                         256.84       252.72
     INITIAL WT., GRAMS                         255.51       251.79
     DIFFERENCE   GRAMS                           1.33          .93

     TOTAL EVAPORATIVE EMISSIONS
                                                                        2.26 GRAMS

EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H20                              BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                        BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                       1            2            3
     BLOWER REVOLUTIONS                         34396        55848        33350
     HC   SAMPLE  METER READING/SCALE            10.7/4       81.5/3       79.9/3
     HC   SAMPLE  PPM                           1070          815          799
     HC   BACKGRD METER READING/SCALE             3.3/3        3.4/3        3.4/3
     HC   BACKGRD PPM                             33           34           34
     CO   SAMPLE  METER READING/SCALE            53.7/1       43.8/1       48.3/1
     CO   SAMPLE  PPM                           5519         3952         4614
     CO   BACKGRD METER READING/SCALE             0.0/2        5.4/2        0.0/2
     CO   BACKGRD PPM                              0          155            0
     CO2  SAMPLE  METER READING/SCALE            56.7/2       40.7/2       49.7/2
     CO2  SAMPLE  PERCENT                         1.63         1.12         1.40
     CO2  BACKGRD METER READING/SCALE             2.1/3        3.8/3        3.1/3
     CO2  BACKGRD PERCENT                          .03          .05          .04
     NOX  SAMPLE  METER READING/SCALE            23.2/3        7.9/3       19.3/3
     NOX  SAMPLE  PPM                            69.6         23.7         57.9
     NOX  BACKGRD METER READING/SCALE              .4/3         .4/3         .9/3
     NOX  BACKGRD PPM                             1.2          1.2          2.7

     HC   CONCENTRATION PPM                     1043          785          770
     CO   CONCENTRATION PPM                     5293         3693         4445
     CO2  CONCENTRATION PCT                     1.60         1.07         1.36
     NOX  CONCENTRATION PPM                     68.6         22.6         55.6
     HC   MASS GRAMS                           39.55        48.35        28.32
     CO   MASS GRAMS                          405.38       459.28       330.10
     CO2  MASS GRAMS                         1940.94      2104.50      1598.46
     NOX  MASS GRAMS                            7.18         3.85         5.64

     WEIGHTED MASS HC      10.87 GRAMS/MILE
     WEIGHTED MASS CO     109.57 GRAMS/MILE
     WEIGHTED MASS CO2    513.36 GRAMS/MILE
     WEIGHTED MASS NOX      1.35 GRAMS/MILE
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                      TABLE A-76.                  VEHICLE EMISSION RESULTS
                                              PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  233        TEST NO. 2
VEHICLE MODEL  20                        DATE  4/ 5/73
                                         ENGINE   307 CID 8                 MFGR. CODE   43
                                                                            CURB WT.  4190              YR.  1968
BAROMETER  29.44 IN.HG.                                                                                 GVW  7500
DRY BULB TEMP.  71.0 DEG. F
REL. HUMIDITY     26 PCT.                                               WET BULB TEMP 53.0 DEG. F
                                                                        ABS. HUMIDITY 30.8 GRAINS/LB
EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                       1              2
     INITIAL WT., GRAMS                  255.80         251.14
     DIFFERENCE   GRAMS                  254.20         250.94
                                           1.60            .20
     TOTAL EVAPORATIVE EMISSIONS
                                                                     1.80 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H20                          BLOWER INLET PRESS., G1  17.5 IN. H20
     BAG RESULTS                                                    BLOWER INLET TEMP.  112 DEG. F
     BAG NO.
     BLOWER REVOLUTIONS                       1              2              3
     HC    SAMPLE  METER READING/SCALE    33301          55908          33113
     HC    SAMPLE  PPM                    13.2/4         72.8/3         88.2/3
     HC    BACKGRD METER READING/SCALE    1320           728            882
     HC    BACKGRD PPM                     2.2/3          .2/3          2.1/3
     CO    SAMPLE  METER READING/SCALE    22             2              21
     CO    SAMPLE  PPM                    64.5/1         54.4/1         60.8/1
     CO    BACKGRD METER READING/SCALE    7815           5646           6941
     CO    BACKGRD PPM                     .3/2           .4/2           .5/2
     CO2   SAMPLE  METER READING/SCALE    8              11             14
     CO2   SAMPLE  PERCENT                58.7/2         32.0/2         49.5/2
     CO2   BACKGRD METER READING/SCALE    1.70           .86            1.39
     CO2   BACKGRD PERCENT                 2.6/3         2.1/3          2.6/3
     NOX   SAMPLE  METER READING/SCALE    .04            .03            .04
     NOX   SAMPLE  PPM                    20.1/3         7.6/3          16.1/3
     NOX   BACKGRD METER READING/SCALE    60.3           22.8           48.3
     NOX   BACKGRD PPM                     .8/3          1.6/3          2.0/3
                                          2.4            4.8            6.0
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM              1302           726            864
     CO2   CONCENTRATION PCT              7487           5495           6684
     NOX   CONCENTRATION PPM              1.67           .83            1.36
     HC    MASS GRAMS                     58.4           18.5           43.3
     CO    MASS GRAMS                     47.86          44.81          31.59
     CO2   MASS GRAMS                     555.57         684.63         493.23
     NOX   MASS GRAMS                     1953.03        1640.40        1588.84
                                          5.09           3.14           4.34
     WEIGHTED MASS HC      11.12 GRAMS/MILE
     WEIGHTED MASS CO     160.62 GRAMS/MILF
     WEIGHTED MASS CO2    451.45 GRAMS/MILE
     WEIGHTED MASS NOX      1.09 GRAMS/MILE
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                         TABLE  A-77.          VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  234        TEST NO. 1          DATE  4/ 4/73
VEHICLE MODEL  F-250                     ENGINE   240 CID 6            MFGR. CODE   31                YR.  1968
                                                                       CURB WT.  4490                 GVW  7500

BAROMETER  29.24 IN.HG.
DRY BULB TEMP.  73.0 DEG. F                                        WET BULB TEMP 52.0 DEG. F
REL. HUMIDITY      19 PCT.                                         ABS. HUMIDITY 23.8 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,    GRAMS                         1           2
     INITIAL WT., GRAMS                     253.77      256.93
     DIFFERENCE   GRAMS                     253.09      256.70
                                               .69         .23
     TOTAL EVAPORATIVE EMISSIONS
                                                                        .92 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                    BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                          1            2            3
     HC    SAMPLE  METER READING/SCALE       32807        55758        32222
     HC    SAMPLE  PPM                        93.3/3       51.6/3       63.6/3
     HC    BACKGRD METER READING/SCALE       933          516          636
     HC    BACKGRD PPM                         2.2/3        2.7/3        2.6/3
     CO    SAMPLE  METER READING/SCALE        22           27           26
     CO    SAMPLE  PPM                        43.4/1       70.8/2       92.3/2
     CO    BACKGRD METER READING/SCALE      3897         2709         3963
     CO    BACKGRD PPM                          .1/2        0.0/2         .1/2
     CO2   SAMPLE  METER READING/SCALE         3            0            3
     CO2   SAMPLE  PERCENT                    58.5/2       37.0/2       52.5/2
     CO2   BACKGRD METER READING/SCALE         1.69         1.01         1.49
     CO2   BACKGRD PERCENT                     2.3/3        2.9/3        3.3/3
     NOX   SAMPLE  METER READING/SCALE          .03          .04          .05
     NOX   SAMPLE  PPM                        77.0/3       40.2/3       77.1/3
     NOX   BACKGRD METER READING/SCALE       231.0        120.6        231.3
     NOX   BACKGRD PPM                          .6/3         .3/3         .3/3
                                               1.8           .9           .9
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                 915          492          614
     CO2   CONCENTRATION PCT                3744         2640         3823
     NOX   CONCENTRATION PPM                   1.66          .97         1.45
     HC    MASS GRAMS                        229.5        119.8        230.5
     CO    MASS GRAMS                         33.00        30.15        21.75
     CO2   MASS GRAMS                        272.71       326.79       273.49
     NOX   MASS GRAMS                       1912.19      1897.56      1639.32
                                              22.13        19.63        21.83
     WEIGHTED MASS HC       7.56 GRAMS/MILE
     WEIGHTED MASS CO      79.99 GRAMS/MILE
     WEIGHTED MASS CO2    487.23 GRAMS/MILE
     WEIGHTED MASS NOX      5.55 GRAMS/MILE
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TABLE A-78.   VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

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UNIT NO.  234        TEST NO. 2          DATE  4/ 5/73                  MFGR. CODE   31               YR.  1968
VEHICLE MODEL  F-250                     ENGINE   240 CID 6             CURB WT.  4490                GVW  7500

BAROMETER  29.43 IN.HG.                                             WET BULB TEMP 59.0 DEG. F
DRY BULB TEMP.  74.0 DEG. F                                         ABS. HUMIDITY 50.4 GRAINS/LB
REL. HUMIDITY     39 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                 1             2
     FINAL WT.,   GRAMS                  255.93        255.65
     INITIAL WT., GRAMS                  255.34        255.51
     DIFFERENCE   GRAMS                     .59           .14

     TOTAL EVAPORATIVE EMISSIONS                                     .73 GRAMS

EXHAUST EMISSIONS

                                                                    BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET TEMP.  112 DEG. F

     BAG RESULTS
     BAG NO.                                  1             2             3
     BLOWER REVOLUTIONS                   31307         55722         32950
     HC    SAMPLE  METER READING/SCALE     93.3/3        53.4/3        57.5/3
     HC    SAMPLE  PPM                     933           534           575
     HC    BACKGRD METER READING/SCALE      2.2/3         2.4/3         2.0/3
     HC    BACKGRD PPM                      22            24            20
     CO    SAMPLE  METER READING/SCALE     43.9/1        71.5/2        85.8/2
     CO    SAMPLE  PPM                    3966          2745          3552
     CO    BACKGRD METER READING/SCALE      .6/2          .5/2          0.0/2
     CO    BACKGRD PPM                      17            14             0
     CO2   SAMPLE  METER READING/SCALE     60.5/2        36.5/2        45.2/2
     CO2   SAMPLE  PERCENT                 1.76           .99          1.26
     CO2   BACKGRD METER READING/SCALE      3.0/3         2.5/3         2.3/3
     CO2   BACKGRD PERCENT                  .04           .04           .03
     NOX   SAMPLE  METER READING/SCALE     81.5/3        39.1/3        63.9/3
     NOX   SAMPLE  PPM                    244.5         117.3         191.7
     NOX   BACKGRD METER READING/SCALE      .1/3          1.1/3          .4/3
     NOX   BACKGRD PPM                      .3            3.3           1.2

     HC    CONCENTRATION PPM               915           512           557
     CO    CONCENTRATION PPM              3768          2646          3422
     CO2   CONCENTRATION PCT              1.72           .96          1.23
     NOX   CONCENTRATION PPM             244.2         114.3         190.6
     HC    MASS GRAMS                    31.59         31.50         20.27
     CO    MASS GRAMS                   262.79        328.41        251.17
     CO2   MASS GRAMS                  1896.10       1883.45       1425.67
     NOX   MASS GRAMS                    25.08         20.89         20.40

     WEIGHTED MASS HC      7.55 GRAMS/MILE
     WEIGHTED MASS CO     77.94 GRAMS/MILE
     WEIGHTED MASS CO2   468.19 GRAMS/MILE
     WEIGHTED MASS NOX     5.79 GRAMS/MILE
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                         TABLF  A-79.          VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  235        TEST NO. 1          DATE  4/ 5/73                  MFGR. CODE  270                YR.  1972
VEHICLE MODEL  GMC 3500                  ENGINE   292 CID 6              CURB WT.  6960                 GVW  7500

BAROMETER  29.3; IN.HG.
DRY BULB TEMP.  75.0 DEG. F                                          WET BULB TEMP 55.0 DEG. F
REL. HUMIDITY      24 PCT.                                           ABS. HUMIDITY 32.1 GRAINS/LB

EVAPORATIVE EMISSIONS

    CANISTER                                  1              2
    FINAL WT.,    GRAMS                    256.60          248.62
    INITIAL WT., GRAMS                     254.92          248.46
    DIFFERENCE    GRAMS                      1.60             .16

    TOTAL EVAPORATIVE EMISSIONS
                                                                         1.84 GRAMS

EXHAUST EMISSIONS

    BLOWER DIF. PRESS., G2,  17.5 IN. H2O                           BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                    BLOWER INLET TEMP.  112 DEG. F
    BAG RESULTS
    BAG NO.                                   1              2              3
    BLOWER REVOLUTIONS                      34659          57607          34002
    HC    SAMPLE  METER READING/SCALE        84.8/3         24.6/3         45.7/3
    HC    SAMPLE  PPM                       848            246            457
    HC    BACKGRD METER READING/SCALE         2.4/3          1.9/3          1.2/3
    HC    BACKGRD PPM                        24             19             12
    CO    SAMPLE  METER READING/SCALE        58.9/1         47.3/2         99.2/2
    CO    SAMPLE  PPM                      6530           1617           4433
    CO    BACKGRD METER READING/SCALE          .3/2          0.0/2           .1/2
    CO    BACKGRD PPM                         8              0              3
    CO2   SAMPLE  METER READING/SCALE        76.0/2         55.7/2         71.7/2
    CO2   SAMPLE  PERCENT                    2.31           1.60           2.15
    CO2   BACKGRD METER READING/SCALE         3.1/3          2.5/3          2.1/3
    CO2   BACKGRD PERCENT                     .04            .04            .03
    NOX   SAMPLE  METER READING/SCALE        81.9/3         54.1/3         96.5/3
    NOX   SAMPLE  PPM                      245.7          162.3          289.5
    NOX   BACKGRD METER READING/SCALE          .9/3           .6/3           .4/3
    NOX   BACKGRD PPM                         2.7            1.8            1.2

    HC    CONCENTRATION PPM                 829            230            447
    CO    CONCENTRATION PPM                6184           1555           4213
    CO2   CONCENTRATION PCT                 2.27           1.57           2.13
    NOX   CONCENTRATION PPM                243.6          160.7          288.5
    HC    MASS GRAMS                        31.58          14.53          16.71
    CO    MASS GRAMS                       475.37         198.68         317.76
    CO2   MASS GRAMS                      2760.89        3158.87        2532.86
    NOX   MASS GRAMS                        25.61          28.08          29.75

    WEIGHTED MASS HC        5.02 GRAMS/MILE
    WEIGHTED MASS CO       77.49 GRAMS/MILE
    WEIGHTED MASS CO2    7_1.97 GRAMS/MILE
    WEIGHTED MASS NOX      .47 GRAMS/MILE
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               TABLE  A-80.           VEHICLE EMISSION RESULTS
                                 PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  235        TEST NO. 2        DATE  4/ 6/73                 MFGR. CODE  270              YR.  1972
VEHICLE MODEL  GMC 3500                ENGINE   242 CID 6            CURB WT.  6960               GVW  7500

BAROMETER  29.22 IN.HG.                                           WET BULB TEMP 59.0 DEG. F
DRY BULB TEMP.  70.0 DEG. F                                       ABS. HUMIDITY 56.8 GRAINS/LB
REL. HUMIDITY      49 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                     1           2
     FINAL WT.,   GRAMS                      251.61      259.54
     INITIAL WT., GRAMS                      249.80      254.25
     DIFFERENCE   GRAMS                        1.81         .29

     TOTAL EVAPORATIVE EMISSIONS                                      2.10 GRAMS


EXHAUST EMISSIONS

                                                                  BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                        BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                      1           2           3
     BLOWER REVOLUTIONS                       33843       57262       34234
     HC   SAMPLE  METER READING/SCALE        11.2/4      27.3/3      44.4/3
     HC   SAMPLE  PPM                        1120         273         444
     HC   BACKGRD METER READING/SCALE         2.4/3       2.6/3       2.3/3
     HC   BACKGRD PPM                         24          26          23
     CO   SAMPLE  METER READING/SCALE        63.9/1      53.4/2      42.5/1
     CO   SAMPLE  PPM                        7666        1877        3774
     CO   BACKGRD METER READING/SCALE         1.0/2        .6/2        .6/2
     CO   BACKGRD PPM                         28          17          17
     CO2  SAMPLE  METER READING/SCALE        74.5/2      57.5/2      79.7/2
     CO2  SAMPLE  PERCENT                    2.25        1.66        2.45
     CO2  BACKGRD METER READING/SCALE         2.8/3       2.9/3       2.8/3
     CO2  BACKGRD PERCENT                     .04         .04         .04
     NOX  SAMPLE  METER READING/SCALE        61.4/3      48.0/3      81.1/3
     NOX  SAMPLE  PPM                        184.2       144.0       243.3
     NOX  BACKGRD METER READING/SCALE          .1/3        .6/3        .7/3
     NOX  BACKGRD PPM                          .3         1.8         2.1

     HC   CONCENTRATION PPM                  1102         251         426
     CO   CONCENTRATION PPM                  7190        1773        3523
     CO2  CONCENTRATION PCT                  2.22        1.62        2.42
     NOX  CONCENTRATION PPM                  184.0       142.5       241.6
     HC   MASS GRAMS                         40.97       15.77       16.02
     CO   MASS GRAMS                        539.85      225.29      267.59
     CO2  MASS GRAMS                       2635.09     3251.45     2898.07
     NOX  MASS GRAMS                         20.91       27.39       27.78

     WEIGHTED MASS HC       5.67 GRAMS/MILE
     WEIGHTED MASS CO      81.33 GRAMS/MILE
     WEIGHTED MASS CO2    804.86 GRAMS/MILE
     WEIGHTED MASS NOX      6.96 GRAMS/MILE
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                          TABLE  A-81.          VEHICLE EMISSION RESULTS
                                        PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  236        TEST NO. 1          DATE  4/ 7/73                 MFGR. CODE   31                YR.  1966
VEHICLE MODEL  F-250                     ENGINE   240 CID 6            CURB WT.  5100                 GVW  7500

BAROMETER  28.98 IN.-G.                                              WET BULB TEMP 58.0 DEG. F
DRY BULB TEMP.  68.0 DEG. F                                          ABS. HUMIDITY 55.8 GRAINS/LB
REL. HUMIDITY     51 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                        1             2
     FINAL WT.,   GRAMS                          256.52        252.75
     INITIAL WT., GRAMS                          256.07        252.49
     DIFFERENCE   GRAMS                             .45           .26

     TOTAL EVAPORATIVE EMISSIONS                                              .71 GRAMS

EXHAUST EMISSIONS

                                                                     BLOWER INLET PRESS., G1  17.5 IN. H20
     BLOWER DIF. PRESS., G2,  17.5 IN. H20                           BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                         1             2             3
     BLOWER REVOLUTIONS                          32848         55605         33717
     HC   SAMPLE  METER READING/SCALE             13.5/4        76.5/3        84.2/3
     HC   SAMPLE  PPM                             1350           765           842
     HC   BACKGRD METER READING/SCALE              2.0/3         2.5/3         2.7/3
     HC   BACKGRD PPM                               20            25            27
     CO   SAMPLE  METER READING/SCALE             60.5/1        52.8/1        59.0/1
     CO   SAMPLE  PPM                             6875          5359          6551
     CO   BACKGRD METER READING/SCALE              1.7/2          .8/2          .1/2
     CO   BACKGRD PPM                               48            23             3
     CO2  SAMPLE  METER READING/SCALE             62.7/2        40.5/2        48.3/2
     CO2  SAMPLE  PERCENT                         1.83          1.11          1.36
     CO2  BACKGRD METER READING/SCALE               .2/2          .1/2         0.0/2
     CO2  BACKGRD PERCENT                          .00           .00          0.00
     NOX  SAMPLE  METER READING/SCALE             38.6/3        12.5/3        23.9/3
     NOX  SAMPLE  PPM                            115.8          37.5          71.7
     NOX  BACKGRD METER READING/SCALE              2.2/3         2.5/3         2.6/3
     NOX  BACKGRD PPM                               6.6           7.5           7.8

     HC   CONCENTRATION PPM                       1334           743           819
     CO   CONCENTRATION PPM                       6480          5136          6269
     CO2  CONCENTRATION PCT                       1.83          1.11          1.36
     NOX  CONCENTRATION PPM                      110.5          31.0          65.1
     HC   MASS GRAMS                             47.74         45.02         30.09
     CO   MASS GRAMS                            468.20        628.14        464.97
     CO2  MASS GRAMS                           2086.94       2147.40       1586.95
     NOX  MASS GRAMS                             12.03          5.71          7.28

     WEIGHTED MASS HC      11.03 GRAMS/MILE
     WEIGHTED MASS CO     145.93 GRAMS/MILE
     WEIGHTED MASS CO2    526.73 GRAMS/MILE
     WEIGHTED MASS NOX      2.00 GRAMS/MILE
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TABLE A-82.

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                                          VEHICLE EMISSION RESULTS
                                     PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  236         TEST NO. 2
VEHICLE MODEL  F-250                 DATE  4/ 8/73                  MFGR. CODE   31
                                     ENGINE   240 CID 6             CURB WT.  5100               YR.  1966
                                                                                                 GVW  7500
BAROMETER  28.94 IN.HG.
DRY BULB TEMP.  69.0 DEG. F                                     WET BULB TEMP 61.0 DEG. F
REL. HUMIDITY     60 PCT.                                       ABS. HUMIDITY 67.3 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                 1
     FINAL WT.,   GRAMS                                         2
     INITIAL WT., GRAMS                    247.97            253.75
     DIFFERENCE   GRAMS                    247.04            253.65
                                              .93               .10
     TOTAL EVAPORATIVE EMISSIONS
                                                                          1.03 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                      BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                       1                 2                 3
     HC    SAMPLE  METER READING/SCALE     35141             57428             35053
     HC    SAMPLE  PPM                      17.3/4            57.5/3            89.4/3
     HC    BACKGRD METER READING/SCALE     1730               575               894
     HC    BACKGRD PPM                       1.4/3             2.7/3             2.0/3
     CO    SAMPLE  METER READING/SCALE       14                27                20
     CO    SAMPLE  PPM                      64.6/1            43.9/1            59.9/1
     CO    BACKGRD METER READING/SCALE     7840              3966              6744
     CO    BACKGRD PPM                        .1/2              .2/2              .5/2
     CO2   SAMPLE  METER READING/SCALE        3                 6                14
     CO2   SAMPLE  PERCENT                  66.3/2            35.5/2            53.7/2
     CO2   BACKGRD METER READING/SCALE     1.96               .96              1.53
     CO2   BACKGRD PERCENT                   2.3/2             2.4/2             2.6/2
     NOX   SAMPLE  METER READING/SCALE      .06               .06               .06
     NOX   SAMPLE  PPM                      32.4/3             8.2/3            25.8/3
     NOX   BACKGRD METER READING/SCALE     97.2              24.6              77.4
     NOX   BACKGRD PPM                       4.5/3             4.7/3             4.2/3
                                           13.5              14.1              12.6
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM               1719               551               877
     CO2   CONCENTRATION PCT               7391              3811              6403
     NOX   CONCENTRATION PPM               1.91               .91              1.48
     HC    MASS GRAMS                      86.6              12.0              66.9
     CO    MASS GRAMS                     65.72             34.41             33.46
     CO2   MASS GRAMS                    570.45            480.68            492.99
     NOX   MASS GRAMS                   2331.90           1812.52           1795.66
                                          10.60              2.39              8.17
     WEIGHTED MASS HC     10.90 GRAMS/MILE
     WEIGHTED MASS CO    134.26 GRAMS/MILE
     WEIGHTED MASS CO2   511.84 GPAMS/MILE
     WEIGHTED MASS NOX     1.55 GRAMS/MILE
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                              TABLE  A-83.            VEHICLE EMISSION RESULTS
                                               PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  237          TEST NO. 1
VEHICLE MODEL  250                         DATE  4/ 7/73
                                           ENGINE   360 CID 8                MFGR. CODE   31
                                                                             CURB WT.  4500                    YR.  1969
                                                                                                               GVW  6100
BAROMETER  28.95 IN.HG.
DRY BULB TEMP.  65.0 DEG. F                                               WET BULB TEMP 57.0 DEG. F
REL. HUMIDITY      57 PCT.                                                ABS. HUMIDITY 56.5 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                           1               2
     INITIAL WT., GRAMS                        252.31          251.80
     DIFFERENCE   GRAMS                        251.57          251.49
                                                  .74             .31
     TOTAL EVAPORATIVE EMISSIONS
                                                                               1.05 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H20                                 BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                           BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                            1               2                3
     HC   SAMPLE  METER READING/SCALE          32952           55764            32850
     HC   SAMPLE  PPM                           14.5/4          39.7/3           63.3/3
     HC   BACKGRD METER READING/SCALE          1450             397              633
     HC   BACKGRD PPM                             2.1/3           2.2/3            2.2/3
     CO   SAMPLE  METER READING/SCALE            21              22               22
     CO   SAMPLE  PPM                           57.1/1          85.6/2           44.9/1
     CO   BACKGRD METER READING/SCALE          6163            3540             4107
     CO   BACKGRD PPM                             .6/2            .8/2             .6/2
     CO2  SAMPLE  METER READING/SCALE            17              23               17
     CO2  SAMPLE  PERCENT                       70.6/2          40.6/2           62.8/2
     CO2  BACKGRD METER READING/SCALE           2.11            1.12             1.84
     CO2  BACKGRD PERCENT                        1.8/2           1.8/2            2.0/2
     NOX  SAMPLE  METER READING/SCALE            .04             .04              .05
     NOX  SAMPLE  PPM                           43.8/3          12.3/3           40.4/3
     NOX  BACKGRD METER READING/SCALE          131.4            36.9            121.2
     NOX  BACKGRD PPM                             2.5/3           2.2/3            2.4/3
                                                  7.5             6.6              7.2
     HC   CONCENTRATION PPM
     CO   CONCENTRATION PPM                    1433             377              615
     CO2  CONCENTRATION PCT                    5785            3379             3872
     NOX  CONCENTRATION PPM                    2.08            1.08             1.79
     HC   MASS GRAMS                          125.5            31.0            115.2
     CO   MASS GRAMS                           51.41           22.91            21.98
     CO2  MASS GRAMS                          418.86          414.01           279.46
     NOX  MASS GRAMS                         2373.49         2084.16          2046.13
                                               13.73            5.75            12.57
     WEIGHTED MASS HC      7.67 GRAMS/MILE
     WEIGHTED MASS CO    100.45 GRAMS/MILE
     WEIGHTED MASS CO2   569.47 GRAMS/MILE
     WEIGHTED MASS NOX     2.51 GRAMS/MILE
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                         TABLE  A-84.          VEHICLE EMISSION RESULTS
                                           PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  237        TEST NO. 2           DATE  4/ 8/73                    MFGR. CODE   31                YR.  1969
VEHICLE MODEL  250                        ENGINE   360 CID 8               CURB WT.  4500                 GVW  6100

BAROMETER  28.98 IN.HG.                                                 WET BULB TEMP 58.0 DEG. F
DRY BULB TEMP.  70.0 DEG. F                                             ABS. HUMIDITY 52.6 GRAINS/LB
REL. HUMIDITY     45 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                     1               2
     FINAL WT.,   GRAMS                      255.46          248.70
     INITIAL WT., GRAMS                      254.66          248.43
     DIFFERENCE   GRAMS                         .80             .27

     TOTAL EVAPORATIVE EMISSIONS                                         1.07 GRAMS

EXHAUST EMISSIONS

                                                                        BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                              BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                      1               2               3
     BLOWER REVOLUTIONS                       33655           57481           34095
     HC   SAMPLE  METER READING/SCALE        15.8/4          41.7/3          60.1/3
     HC   SAMPLE  PPM                        1580             417             601
     HC   BACKGRD METER READING/SCALE         1.7/3            .5/3           1.0/3
     HC   BACKGRD PPM                          17               5              10
     CO   SAMPLE  METER READING/SCALE        57.7/1          89.8/2          41.8/1
     CO   SAMPLE  PPM                        6283            3801            3681
     CO   BACKGRD METER READING/SCALE         .7/2            .3/2             .8/2
     CO   BACKGRD PPM                          20               8              23
     CO2  SAMPLE  METER READING/SCALE        69.1/2          45.7/2          54.4/2
     CO2  SAMPLE  PERCENT                    2.06            1.27            1.55
     CO2  BACKGRD METER READING/SCALE         1.0/2           2.7/2           2.8/2
     CO2  BACKGRD PERCENT                     .02             .07             .07
     NOX  SAMPLE  METER READING/SCALE        46.5/3          19.1/3          38.9/3
     NOX  SAMPLE  PPM                       139.5            57.3           116.7
     NOX  BACKGRD METER READING/SCALE         2.1/3           1.8/3           2.2/3
     NOX  BACKGRD PPM                          6.3             5.4             6.6

     HC   CONCENTRATION PPM                  1567             413             592
     CO   CONCENTRATION PPM                  5927            3645            3498
     CO2  CONCENTRATION PCT                  2.04            1.22            1.49
     NOX  CONCENTRATION PPM                 134.5            52.6           111.1
     HC   MASS GRAMS                        57.44           25.84           22.01
     CO   MASS GRAMS                       438.77          460.91          262.32
     CO2  MASS GRAMS                      2382.23         2427.23         1769.52
     NOX  MASS GRAMS                        14.80            9.88           12.38

     WEIGHTED MASS HC       8.41 GRAMS/MILE
     WEIGHTED MASS CO     106.55 GRAMS/MILE
     WEIGHTED MASS CO2    594.70 GRAMS/MILE
     WEIGHTED MASS NOX      4.11 GRAMS/MILE
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                      TABLE  A-85.          VEHICLE EMISSION RESULTS
                                        PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  238         TEST NO. 1            DATE  4/12/72                 MFGR. CODE   31               YR.  1973
VEHICLE MODEL  ECONOLINE 300                ENGINE   302 CID 8            CURB WT.  4340                GVW  8300

BAROMETER  24.35 IN.HG.
DRY BULB TEMP.  74.0 DEG. F                                               WET BULB TEMP 63.0 DEG. F
REL. HUMIDITY     62 PCT.                                                 ABS. HUMIDITY 68.4 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                     1             2
     FINAL WT.,    GRAMS                     253.59        260.37
     INITIAL WT., GRAMS                      253.42        260.26
     DIFFERENCE   GRAMS                         .17           .11

     TOTAL EVAPORATIVE EMISSIONS                                            .28 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H20                          BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                    BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                      1             2             3
     BLOWER REVOLUTIONS                       33116         55816         33158
     HC    SAMPLE  METER READING/SCALE       93.8/3        35.4/3        52.9/3
     HC    SAMPLE  PPM                          938           354           529
     HC    BACKGRD METER READING/SCALE        1.3/3         3.1/3         2.7/3
     HC    BACKGRD PPM                           13            31            27
     CO    SAMPLE  METER READING/SCALE       43.2/1        40.4/2        47.0/2
     CO    SAMPLE  PPM                         3869          1339          1605
     CO    BACKGRD METER READING/SCALE         .5/2          .5/2          .4/2
     CO    BACKGRD PPM                           14            14            11
     CO2   SAMPLE  METER READING/SCALE       70.9/2        39.2/2        55.0/2
     CO2   SAMPLE  PERCENT                     2.12          1.07          1.57
     CO2   BACKGRD METER READING/SCALE        2.3/2         2.1/2         2.2/2
     CO2   BACKGRD PERCENT                      .06           .05           .05
     NOX   SAMPLE  METER READING/SCALE       73.6/3        28.9/3        66.9/3
     NOX   SAMPLE  PPM                        220.8          86.7         200.7
     NOX   BACKGRD METER READING/SCALE         .9/3         1.5/3         1.3/3
     NOX   BACKGRD PPM                          2.7           4.5           3.9

     HC    CONCENTRATION PPM                    928           326           506
     CO    CONCENTRATION PPM                   3634          1276          1519
     CO2   CONCENTRATION PCT                   2.08          1.03          1.53
     NOX   CONCENTRATION PPM                  218.6          82.6         197.3
     HC    MASS GRAMS                         33.91         20.08         18.51
     CO    MASS GRAMS                        268.29        156.80        112.29
     CO2   MASS GRAMS                       2419.60       2017.61       1781.06
     NOX   MASS GRAMS                         25.71         16.37         23.23

     WEIGHTED MASS HC       6.03 GRAMS/MILE
     WEIGHTED MASS CO      45.09 GRAMS/MILE
     WEIGHTED MASS CO2    543.10 GRAMS/MILE
     WEIGHTED MASS NOX      5.42 GRAMS/MILE
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                    TABLE  A-86.             VEHICLE EMISSION RESULTS
                                       PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  238          TEST NO. 2          DATE  4/13/73                    MFGR. CODE   31                 YR.  1973
VEHICLE MODEL  ECONOLINE 300               ENGINE   302 CID 8               CURB WT.  4340                  GVW  8300

BAROMETER  29.36 IN.HG.
DRY BULB TEMP.  76.0 DEG. F                                          WET BULB TEMP 68.0 DEG. F
REL. HUMIDITY     58 PCT.                                            ABS. HUMIDITY 86.7 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                    1            2
     FINAL WT.,   GRAMS                       255.49       251.20
     INITIAL WT., GRAMS                       255.28       251.02
     DIFFERENCE   GRAMS                          .21          .18

     TOTAL EVAPORATIVE EMISSIONS
                                                                   .39 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                        BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                  BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                          1            2            3
     HC    SAMPLE  METER READING/SCALE        33207        56448        33602
     HC    SAMPLE  PPM                         72.9/3       44.8/3       49.8/3
     HC    BACKGRD METER READING/SCALE         729          448          498
     HC    BACKGRD PPM                          2.4/3        2.6/3        1.7/3
     CO    SAMPLE  METER READING/SCALE          24           26           17
     CO    SAMPLE  PPM                         91.3/2       47.5/2       43.0/2
     CO    BACKGRD METER READING/SCALE        3848         1625         1442
     CO    BACKGRD PPM                           .1/2         .3/2         .4/2
     CO2   SAMPLE  METER READING/SCALE           3            8           11
     CO2   SAMPLE  PERCENT                     63.7/2       47.8/2       51.1/2
     CO2   BACKGRD METER READING/SCALE         1.87         1.34         1.45
     CO2   BACKGRD PERCENT                      2.6/2        2.5/2        1.3/2
     NOX   SAMPLE  METER READING/SCALE          .06          .06          .03
     NOX   SAMPLE  PPM                         60.3/3       33.2/3       58.9/3
     NOX   BACKGRD METER READING/SCALE        180.9         99.6        176.7
     NOX   BACKGRD PPM                           .8/3         .1/3         .7/3
                                                2.4           .3          2.1
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                   709          425          483
     CO2   CONCENTRATION PCT                  3682         1545         1365
     NOX   CONCENTRATION PPM                  1.81         1.29         1.42
     HC    MASS GRAMS                        173.7         95.3        174.9
     CO    MASS GRAMS                        26.01        26.50        17.93
     CO2   MASS GRAMS                       272.64       194.52       102.27
     NOX   MASS GRAMS                      2120.98      2555.30      1677.73
                                             23.03        21.73        22.77
     WEIGHTED MASS HC       6.39 GRAMS/MILE
     WEIGHTED MASS CO      49.34 GRAMS/MILE
     WEIGHTED MASS CO2    694.81 GRAMS/MILE
     WEIGHTED MASS NOX      5.45 GRAMS/MILE
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                                TABLE  A-                  VEHICLE EMISSION RESULTS
                                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  239        TEST NO. 1            DATE  4/12/7                     MFGR. CODE   43                    YR.  1971
VEHICLE MODEL  CUSTOM 20                   ENGINE   350 CID 6               CURB WT.  4500                    GVW  6200

BAROMETER  28.84 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                            WET BULB TEMP 69.0 DEG. F
REL. HUMIDITY      61 PCT.                                             ABS. HUMIDITY 92.0 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                       1             2
     FINAL WT.,  GRAMS                         252.01        247.68
     INITIAL WT.,  GRAMS                       251.05        247.58
     DIFFERENCE   GRAMS                           .96           .10

     TOTAL EVAPORATIVE EMISSIONS                                             1.06 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                    BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                        1             2             3
     BLOWER REVOLUTIONS                         33166         55765         33248
     HC   SAMPLE  METER READING/SCALE          67.8/3        38.0/3        54.6/3
     HC   SAMPLE  PPM                             678           380           546
     HC   BACKGRD METER READING/SCALE           2.7/3         2.4/3         2.7/3
     HC   BACKGRD PPM                              27            24            27
     CO   SAMPLE  METER READING/SCALE          71.1/2        44.1/2        53.3/2
     CO   SAMPLE  PPM                            2724          1486          1873
     CO   BACKGRD METER READING/SCALE            .7/2          .6/2          .5/2
     CO   BACKGRD PPM                              20            17            14
     CO2  SAMPLE  METER READING/SCALE          74.2/2        53.6/2        70.4/2
     CO2  SAMPLE  PERCENT                        2.24          1.53          2.10
     CO2  BACKGRD METER READING/SCALE           2.9/2         2.5/2         2.5/2
     CO2  BACKGRD PERCENT                         .07           .06           .06
     NOX  SAMPLE  METER READING/SCALE          59.3/3        26.7/3        61.5/3
     NOX  SAMPLE  PPM                           177.9          80.1         184.5
     NOX  BACKGRD METER READING/SCALE           2.8/3          .1/3          .1/3
     NOX  BACKGRD PPM                             8.4            .3            .3

     HC   CONCENTRATION PPM                       656           359           524
     CO   CONCENTRATION PPM                      2538          1399          1749
     CO2  CONCENTRATION PCT                      2.18          1.47          2.05
     NOX  CONCENTRATION PPM                     171.1          79.8         184.3
     HC   MASS GRAMS                            23.59         21.70         18.87
     CO   MASS GRAMS                           184.19        170.71        127.26
     CO2  MASS GRAMS                          2502.98       2839.09       2358.42
     NOX  MASS GRAMS                            22.17         17.40         23.94

     WEIGHTED MASS HC       5.68 GRAMS/MILE
     WEIGHTED MASS CO      42.99 GRAMS/MILE
     WEIGHTED MASS CO2    791.29 GRAMS/MILE
     WEIGHTED MASS NOX      5.41 GRAMS/MILE
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TABLE A-88. VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

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UNIT NO.  239        TEST NO. 2           DATE  4/13/73                 MFGR. CODE   43              YR.  1971
VEHICLE MODEL  CUSTOM 20                  ENGINE   350 CID 8            CURB WT.  4500               GVW  6200

BAROMETER  29.36 IN.HG.                                                WET BULB TEMP 68.0 DEG. F
DRY BULB TEMP.  78.0 DEG. F                                            ABS. HUMIDITY 86.7 GRAINS/LB
REL. HUMIDITY     58 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                    1             2
     FINAL WT.,   GRAMS                     250.06        252.35
     INITIAL WT., GRAMS                     249.33        252.13
     DIFFERENCE   GRAMS                        .73           .22

     TOTAL EVAPORATIVE EMISSIONS                                             .95 GRAMS


EXHAUST EMISSIONS

                                                                       BLOWER INLET PRESS., G1  17.5 IN. H20
     BLOWER DIF. PRESS., G2,  17.5 IN. H20                             BLOWER INLET TEMP.  112 DEG. F

     BAG RESULTS
     BAG NO.                                     1             2             3
     BLOWER REVOLUTIONS                      34395         57961         34182
     HC   SAMPLE  METER READING/SCALE       83.1/3        32.1/3        45.1/3
     HC   SAMPLE  PPM                          831           321           451
     HC   BACKGRD METER READING/SCALE        1.9/3         2.5/3         1.4/3
     HC   BACKGRD PPM                           19            25            14
     CO   SAMPLE  METER READING/SCALE       56.1/1        44.3/2        47.0/2
     CO   SAMPLE  PPM                         5967          1494          1605
     CO   BACKGRD METER READING/SCALE        1.2/2          .7/2          .1/2
     CO   BACKGRD PPM                           34            20             3
     CO2  SAMPLE  METER READING/SCALE       69.2/2        43.1/2        61.3/2
     CO2  SAMPLE  PERCENT                     2.06          1.19          1.78
     CO2  BACKGRD METER READING/SCALE        2.1/2         2.0/2         1.5/2
     CO2  BACKGRD PERCENT                      .05           .05           .04
     NOX  SAMPLE  METER READING/SCALE       46.4/3        20.2/3        59.6/3
     NOX  SAMPLE  PPM                        139.2          60.6         178.8
     NOX  BACKGRD METER READING/SCALE        1.0/3          .1/3         1.1/3
     NOX  BACKGRD PPM                          3.0            .3           3.3

     HC   CONCENTRATION PPM                    816           299           439
     CO   CONCENTRATION PPM                   5591          1419          1517
     CO2  CONCENTRATION PCT                   2.02          1.15          1.75
     NOX  CONCENTRATION PPM                  136.8          60.3         176.0
     HC   MASS GRAMS                         30.88         19.04         16.52
     CO   MASS GRAMS                        427.32        182.15        115.21
     CO2  MASS GRAMS                       2436.97       2336.75       2102.81
     NOX  MASS GRAMS                         18.17         13.51         23.24

     WEIGHTED MASS HC       5.57 GRAMS/MILE
     WEIGHTED MASS CO      57.54 GRAMS/MILE
     WEIGHTED MASS CO2    611.10 GRAMS/MILE
     WEIGHTED MASS NOX      4.61 GRAMS/MILE
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TABLE A-89.

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                                            VEHICLE EMISSION RESULTS
                                     PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  240          TEST NO. 1           DATE  4/14/73
VEHICLE MODEL  1315                         ENGINE   304 CID 8             MFGR. CODE  270
                                                                           CURB WT.  5590                 YR.  1973
                                                                                                          GVW 10000
BAROMETER  29.29 IN.HG.
DRY BULB TEMP.  79.0 DEG. F
REL. HUMIDITY     62 PCT.                                              WET BULB TEMP 69.0 DEG. F
                                                                       ABS. HUMIDITY 92.0 GRAINS/LB
EVAPORATIVE EMISSIONS

     CANISTER                                   1               2
     FINAL WT.,    GRAMS                   246.93          251.51
     INITIAL WT., GRAMS                    246.81          251.31
     DIFFERENCE    GRAMS                      .12             .20

     TOTAL EVAPORATIVE EMISSIONS
                                                                         .32 GRAMS
EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H20                             BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                       BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                    1               2               3
     BLOWER REVOLUTIONS                     33067           55902           33649
     HC    SAMPLE  METER READING/SCALE       14.9/4          59.7/3          10.6/4
     HC    SAMPLE  PPM                       1490             597            1060
     HC    BACKGRD METER READING/SCALE        1.8/3           2.6/3           2.7/3
     HC    BACKGRD PPM                        18              26              27
     CO    SAMPLE  METER READING/SCALE       55.7/1          53.0/1          51.0/1
     CO    SAMPLE  PPM                       5890            5394            5050
     CO    BACKGRD METER READING/SCALE         .6/2           1.3/2            .8/2
     CO    BACKGRD PPM                        17              37              23
     CO2   SAMPLE  METER READING/SCALE       90.5/2          61.2/2          79.6/2
     CO2   SAMPLE  PERCENT                   2.87            1.78            2.44
     CO2   BACKGRD METER READING/SCALE        2.2/2           2.2/2           2.0/2
     CO2   BACKGRD PERCENT                    .05             .05             .05
     NOX   SAMPLE  METER READING/SCALE       37.1/3          14.1/3          38.5/3
     NOX   SAMPLE  PPM                      111.3            42.3           115.5
     NOX   BACKGRD METER READING/SCALE         .3/3            .1/3            .3/3
     NOX   BACKGRD PPM                          .9              .3              .9

     HC    CONCENTRATION PPM                 1477             576            1039
     CO    CONCENTRATION PPM                 5435            5072            4695
     CO2   CONCENTRATION PCT                 2.83            1.74            2.41
     NOX   CONCENTRATION PPM                110.6            42.1           114.8
     HC    MASS GRAMS                       53.80           35.45           38.52
     CO    MASS GRAMS                      399.73          630.63          351.36
     CO2   MASS GRAMS                     3288.89         3409.37         2843.07
     NOX   MASS GRAMS                       14.53            9.34           15.34

     WEIGHTED MASS HC       10.74 GRAMS/MILE
     WEIGHTED MASS CO      133.71 GRAMS/MILE
     WEIGHTED MASS CO2     854.22 GRAMS/MILE
     WEIGHTED MASS NOX       3.24 GRAMS/MILE
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                         TABLE A-90.          VEHICLE EMISSION RESULTS
                                     PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  240        TEST NO. 2         DATE  4/15/73                   MFGR. CODE  270                YR.  1973
VEHICLE MODEL  1310                     ENGINE   304 CID 8              CURB WT.  5590                 GVW 10000

BAROMETER  29.11 IN.HG.                                            WET BULB TEMP 69.0 DEG. F
DRY BULB TEMP.  76.0 DEG. F                                        ABS. HUMIDITY 95.3 GRAINS/LB
REL. HUMIDITY     68 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                   1               2
     FINAL WT.,   GRAMS                    253.18          252.95
     INITIAL WT., GRAMS                    252.81          252.83
     DIFFERENCE   GRAMS                       .37             .12

     TOTAL EVAPORATIVE EMISSIONS                                          .49 GRAMS

EXHAUST EMISSIONS

                                                                   BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                         BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                    1               2               3
     BLOWER REVOLUTIONS                     33713           55087           34109
     HC   SAMPLE  METER READING/SCALE      19.2/4          60.0/3          84.4/3
     HC   SAMPLE  PPM                        1920             600             844
     HC   BACKGRD METER READING/SCALE       2.6/3           2.7/3           2.6/3
     HC   BACKGRD PPM                          26              27              26
     CO   SAMPLE  METER READING/SCALE      59.0/1          50.4/1          54.4/1
     CO   SAMPLE  PPM                        6551            4950            5646
     CO   BACKGRD METER READING/SCALE       1.9/2           3.7/2           2.1/2
     CO   BACKGRD PPM                          54             106              60
     CO2  SAMPLE  METER READING/SCALE      92.7/2          62.6/2          78.8/2
     CO2  SAMPLE  PERCENT                    2.96            1.83            2.41
     CO2  BACKGRD METER READING/SCALE       2.4/2           3.6/2           2.7/2
     CO2  BACKGRD PERCENT                     .06             .09             .07
     NOX  SAMPLE  METER READING/SCALE      41.8/3          14.5/3          31.5/3
     NOX  SAMPLE  PPM                       125.4            43.5            94.5
     NOX  BACKGRD METER READING/SCALE       1.7/3           1.2/3           1.4/3
     NOX  BACKGRD PPM                         5.1             3.6             4.2

     HC   CONCENTRATION PPM                  1901             578             824
     CO   CONCENTRATION PPM                  5997            4583            5215
     CO2  CONCENTRATION PCT                  2.92            1.76            2.36
     NOX  CONCENTRATION PPM                 121.7            40.5            91.2
     HC   MASS GRAMS                        70.16           34.84           30.76
     CO   MASS GRAMS                       446.78          557.88          393.14
     CO2  MASS GRAMS                      3433.98         3374.51         2811.14
     NOX  MASS GRAMS                        16.47            8.96           12.49

     WEIGHTED MASS HC      11.01 GRAMS/MILE
     WEIGHTED MASS CO     129.88 GRAMS/MILE
     WEIGHTED MASS CO2    860.46 GRAMS/MILE
     WEIGHTED MASS NOX      3.09 GRAMS/MILE
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                    TABLE A-91.             VEHICLE EMISSION RESULTS
                                        PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  241          TEST NO. 1           DATE  4/14/73
VEHICLE MODEL  CUSTOM F250                  ENGINE   300 CID 6                 MFGR. CODE   31                    YR.  1972
                                                                               CURB WT.  5610                     GVW  6900

BAROMETER  29.24 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                                  WET BULB TEMP 68.0 DEG. F
REL. HUMIDITY      46 PCT.                                                   ABS. HUMIDITY 86.7 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,    GRAMS                               1              2
     INITIAL WT., GRAMS                           254.45         250.58
     DIFFERENCE    GRAMS                          253.58         250.48
                                                     .87            .10
     TOTAL EVAPORATIVE EMISSIONS
                                                                                   .97 GRAMS

EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H20                                 BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                           BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                               1              2              3
     HC   SAMPLE  METER READING/SCALE             33178          55872          33140
     HC   SAMPLE  PPM                              95.9/3         35.0/3         60.3/3
     HC   BACKGRD METER READING/SCALE             959            350            603
     HC   BACKGRD PPM                               1.6/3          2.8/3          2.5/3
     CO   SAMPLE  METER READING/SCALE              16             28             25
     CO   SAMPLE  PPM                              65.8/1         81.2/2         52.0/1
     CO   BACKGRD METER READING/SCALE             8148           3279           5220
     CO   BACKGRD PPM                                .1/2           .9/2           .2/2
     CO2  SAMPLE  METER READING/SCALE               3             25              6
     CO2  SAMPLE  PERCENT                          80.0/2         52.5/2         72.5/2
     CO2  BACKGRD METER READING/SCALE              2.46           1.49           2.18
     CO2  BACKGRD PERCENT                           1.8/2          2.2/2          2.5/2
     NOX  SAMPLE  METER READING/SCALE               .04            .05            .06
     NOX  SAMPLE  PPM                              66.5/3         39.9/3         82.4/3
     NOX  BACKGRD METER READING/SCALE             199.5          119.7          247.2
     NOX  BACKGRD PPM                                .1/3          1.1/3           .9/3
                                                     .3            3.3            2.7
     HC   CONCENTRATION PPM
     CO   CONCENTRATION PPM                         947            326            583
     CO2  CONCENTRATION PCT                        7607           3102           4898
     NOX  CONCENTRATION PPM                        2.43           1.44           2.13
     HC   MASS GRAMS                              199.3          116.9          245.1
     CO   MASS GRAMS                              34.61          20.06          21.29
     CO2  MASS GRAMS                             561.36         385.50         361.05
     NOX  MASS GRAMS                            2826.67        2834.53        2479.79
                                                  25.56          25.24          31.40
     WEIGHTED MASS HC      6.28 GRAMS/MILE
     WEIGHTED MASS CO    111.02 GRAMS/MILE
     WEIGHTED MASS CO2   728.46 GRAMS/MILE
     WEIGHTED MASS NOX     7.22 GRAMS/MILE
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TABLE A-92. VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

```
UNIT NO.  241        TEST NO. 2          DATE  4/15/73                MFGR. CODE   31                YR.  1972
VEHICLE MODEL  CUSTOM F250               ENGINE   300 CID 6           CURB WT.  5610                GVW  6900

BAROMETER  29.11 IN.HG.                                          WET BULB TEMP 69.0 DEG. F
DRY BULB TEMP.  76.0 DEG. F                                      ABS. HUMIDITY 95.3 GRAINS/LB
REL. HUMIDITY     68 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                    1              2
     FINAL WT.,    GRAMS                    251.01         247.26
     INITIAL WT., GRAMS                     250.24         246.61
     DIFFERENCE    GRAMS                       .77            .65

     TOTAL EVAPORATIVE EMISSIONS                                        1.42 GRAMS

EXHAUST EMISSIONS

                                                                 BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                       BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                     1              2              3
     BLOWER REVOLUTIONS                      33367          56798          34889
     HC   SAMPLE  METER READING/SCALE       98.8/3         36.3/3         52.4/3
     HC   SAMPLE  PPM                          988            363            524
     HC   BACKGRD METER READING/SCALE        2.5/3          2.7/3          2.0/3
     HC   BACKGRD PPM                           25             27             20
     CO   SAMPLE  METER READING/SCALE       68.6/1         84.0/2         97.5/2
     CO   SAMPLE  PPM                         8917           3444           4314
     CO   BACKGRD METER READING/SCALE         .5/2           .8/2           .3/2
     CO   BACKGRD PPM                           14             23              8
     CO2  SAMPLE  METER READING/SCALE       81.2/2         52.6/2         72.4/2
     CO2  SAMPLE  PERCENT                     2.50           1.49           2.18
     CO2  BACKGRD METER READING/SCALE        2.1/2          2.1/2          1.9/2
     CO2  BACKGRD PERCENT                      .05            .05            .05
     NOX  SAMPLE  METER READING/SCALE       68.0/3         47.4/3         30.2/4
     NOX  SAMPLE  PPM                        204.0          142.2          302.0
     NOX  BACKGRD METER READING/SCALE         .1/3           .9/3           .8/3
     NOX  BACKGRD PPM                           .3            2.7            2.4

     HC   CONCENTRATION PPM                    969            390            508
     CO   CONCENTRATION PPM                   8281           3250           4032
     CO2  CONCENTRATION PCT                   2.47           1.45           2.14
     NOX  CONCENTRATION PPM                  203.8          139.9          300.1
     HC   MASS GRAMS                         35.41          21.12          19.40
     CO   MASS GRAMS                        610.68         408.00         310.88
     CO2  MASS GRAMS                       2871.83        2873.88        2603.63
     NOX  MASS GRAMS                         27.28          31.88          42.00

     WEIGHTED MASS HC       6.32 GRAMS/MILE
     WEIGHTED MASS CO     113.04 GRAMS/MILE
     WEIGHTED MASS CO2    745.71 GRAMS/MILE
     WEIGHTED MASS NOX      9.01 GRAMS/MILE
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                        TABLE A 9[illegible]          VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  242         TEST NO. 1          DATE  4/17/73                MFGR. CODE   22                YR.  1971
VEHICLE MODEL  CAMPER SPECIAL             ENGINE    318 CID 8          CURB WT.  4500               GVW  7500

BAROMETER  29.02 IN.HG.                                              WET BULB TEMP 66.0 DEG. F
DRY BULB TEMP.  76.0 DEG. F                                          ABS. HUMIDITY 79.7 GRAINS/LB
REL. HUMIDITY      52 PCT.

EVAPORATIVE EMISSIONS

    CANISTER                                   1              2
    FINAL WT.,   GRAMS                      254.22         248.23
    INITIAL WT., GRAMS                      253.72         248.01
    DIFFERENCE   GRAMS                         .50            .22

    TOTAL EVAPORATIVE EMISSIONS                                          .72 GRAMS

EXHAUST EMISSIONS

    BLOWER DIF. PRESS., G2,  17.5 IN. H2O                           BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                    BLOWER INLET TEMP.  110 DEG. F
    BAG RESULTS
    BAG NO.                                     1              2              3
    BLOWER REVOLUTIONS                       33302          55848          33133
    HC    SAMPLE  METER READING/SCALE        13.1/4         49.3/3         68.1/3
    HC    SAMPLE  PPM                        1310            493            681
    HC    BACKGRD METER READING/SCALE         2.3/3          2.7/3          2.3/3
    HC    BACKGRD PPM                          23             27             23
    CO    SAMPLE  METER READING/SCALE        71.8/1         46.3/1         55.0/1
    CO    SAMPLE  PPM                        9895           4310           5758
    CO    BACKGRD METER READING/SCALE         1.2/2           .3/2           .5/2
    CO    BACKGRD PPM                          34              8             14
    CO2   SAMPLE  METER READING/SCALE        86.0/2         53.1/2         76.8/2
    CO2   SAMPLE  PERCENT                    2.69           1.51           2.34
    CO2   BACKGRD METER READING/SCALE         2.0/2          1.4/2          1.8/2
    CO2   BACKGRD PERCENT                     .05            .03            .04
    NOX   SAMPLE  METER READING/SCALE        56.8/3         33.4/3         50.7/3
    NOX   SAMPLE  PPM                        170.4          100.2          152.1
    NOX   BACKGRD METER READING/SCALE          .4/3          1.1/3          0.0/3
    NOX   BACKGRD PPM                         1.2            3.3            0.0

    HC    CONCENTRATION PPM                  1293            470            663
    CO    CONCENTRATION PPM                  9178           4099           5383
    CO2   CONCENTRATION PCT                  2.66           1.48           2.30
    NOX   CONCENTRATION PPM                  169.5           97.4          152.1
    HC    MASS GRAMS                         47.09          28.69          24.01
    CO    MASS GRAMS                        674.58         505.19         393.56
    CO2   MASS GRAMS                       4082.78        2883.40        2659.90
    NOX   MASS GRAMS                         20.93          20.16          18.68

    WEIGHTED MASS HC       8.45 GRAMS/MILE
    WEIGHTED MASS CO     145.95 GRAM3/MILE
    WEIGHTED MASS CO2    263.35 GRAMS/MILE
    WEIGHTED MASS NOX      5.31 GRAMS/MILE
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TABLE A-94. VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

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UNIT NO.  242        TEST NO. 2          DATE  4/18/73                 MFGR. CODE   22                YR.  1971
VEHICLE MODEL  CAMPER SPECIAL            ENGINE   318 CID 8            CURB WT.  4500                GVW  7500

BAROMETER  28.99 IN.HG.                                             WET BULB TEMP 64.0 DEG. F
DRY BULB TEMP.  79.0 DEG. F                                         ABS. HUMIDITY 65.0 GRAINS/LB
REL. HUMIDITY     42 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                       1             2
     FINAL WT.,   GRAMS                        249.87        259.65
     INITIAL WT., GRAMS                        249.46        259.55
     DIFFERENCE   GRAMS                           .41           .10

     TOTAL EVAPORATIVE EMISSIONS                                       .51 GRAMS


EXHAUST EMISSIONS

                                                                    BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                        1             2             3
     BLOWER REVOLUTIONS                         33764         56130         33992
     HC    SAMPLE  METER READING/SCALE         14.2/4        43.8/3        58.2/3
     HC    SAMPLE  PPM                           1420           438           582
     HC    BACKGRD METER READING/SCALE          2.6/3         1.3/3         2.7/3
     HC    BACKGRD PPM                             26            13            27
     CO    SAMPLE  METER READING/SCALE         71.7/1        44.2/1        55.0/1
     CO    SAMPLE  PPM                           9863          4008          5758
     CO    BACKGRD METER READING/SCALE          1.4/2         1.0/1         1.0/1
     CO    BACKGRD PPM                             40            59            59
     CO2   SAMPLE  METER READING/SCALE         86.0/2        54.0/2        75.0/2
     CO2   SAMPLE  PERCENT                       2.69          1.54          2.27
     CO2   BACKGRD METER READING/SCALE          1.8/2         2.7/2         1.9/2
     CO2   BACKGRD PERCENT                        .04           .07           .05
     NOX   SAMPLE  METER READING/SCALE         58.0/3        36.2/3        59.6/3
     NOX   SAMPLE  PPM                          174.0         108.6         178.8
     NOX   BACKGRD METER READING/SCALE          3.0/3         3.5/3         2.2/3
     NOX   BACKGRD PPM                            9.0          10.5           6.6

     HC    CONCENTRATION PPM                     1401           427           561
     CO    CONCENTRATION PPM                     9191          3785          5383
     CO2   CONCENTRATION PCT                     2.66          1.48          2.23
     NOX   CONCENTRATION PPM                    167.5          99.6         173.6
     HC    MASS GRAMS                           51.57         26.12         20.78
     CO    MASS GRAMS                          682.04        467.57        402.60
     CO2   MASS GRAMS                         3120.37       2093.20       2639.39
     NOX   MASS GRAMS                           19.53         19.31         20.37

     WEIGHTED MASS HC       8.02 GRAMS/MILE
     WEIGHTED MASS CO     132.09 GRAMS/MILE
     WEIGHTED MASS CO2    765.25 GRAMS/MILE
     WEIGHTED MASS NOX      5.24 GRAMS/MILE
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                         TABLE  A-95.            VEHICLE EMISSION RESULTS
                                           PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  243        TEST NO. 1            DATE  4/25/73                MFGR. CODE  220                  YR.  1972
VEHICLE MODEL  [illegible]                 ENGINE   413 CID H           CURB WT. 10120                   GVW 13000

BAROMETER  28.84 IN.HG.                                                 WET BULB TEMP 67.0 DEG. F
DRY BULB TEMP.  74.0 DEG. F                                             ABS. HUMIDITY 79.9 GRAINS/LB
REL. HUMIDITY      51 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                      1               2               3
     FINAL WT.,   GRAMS                         255.01          250.27          246.54
     INITIAL WT., GRAMS                         254.02          249.50          245.71
     DIFFERENCE   GRAMS                            .99             .77             .83

     TOTAL EVAPORATIVE EMISSIONS                                         2.59 GRAMS

EXHAUST EMISSIONS

                                                                        BLOWER INLET PRESS., G1  17.5 IN. H20
     BLOWER DIF. PRESS., G2,  17.5 IN. H20                              BLOWER INLET TEMP.  109 DEG. F

     BAG RESULTS
     BAG NO.                                       1               2               3
     BLOWER REVOLUTIONS                         45790           72828           41818
     HC    SAMPLE  METER READING/SCALE          14.1/4          71.9/3          81.1/3
     HC    SAMPLE  PPM                          1410             719             811
     HC    BACKGRD METER READING/SCALE           2.6/3           2.9/3           2.9/3
     HC    BACKGRD PPM                            26              29              24
     CO    SAMPLE  METER READING/SCALE          65.1/1          39.5/1          54.8/1
     CO    SAMPLE  PPM                          7966            3384            5720
     CO    BACKGRD METER READING/SCALE            .8/2            .1/1            .7/2
     CO    BACKGRD PPM                            23               6              20
     CO2   SAMPLE  METER READING/SCALE          93.8/2          59.2/2          90.6/2
     CO2   SAMPLE  PERCENT                      3.01            1.71            2.88
     CO2   BACKGRD METER READING/SCALE           2.0/2           2.0/2           1.8/2
     CO2   BACKGRD PERCENT                       .05             .05             .04
     NOX   SAMPLE  METER READING/SCALE          30.2/4          64.8/3          38.8/4
     NOX   SAMPLE  PPM                         302.0           204.4           388.0
     NOX   BACKGRD METER READING/SCALE           1.0/3           1.9/3           2.1/3
     NOX   BACKGRD PPM                           3.0             5.7             6.3

     HC    CONCENTRATION PPM                    1392             695             790
     CO    CONCENTRATION PPM                    7358            3212            5295
     CO2   CONCENTRATION PCT                    2.97            1.67            2.84
     NOX   CONCENTRATION PPM                   299.9           204.6           383.3
     HC    MASS GRAMS                          69.90           55.49           36.22
     CO    MASS GRAMS                         746.28          518.14          490.45
     CO2   MASS GRAMS                        4759.71         4258.37         4158.21
     NOX   MASS GRAMS                          51.13           55.49           59.70

     WEIGHTED MASS HC      14.16 GRAMS/MILE
     WEIGHTED MASS CO     149.15 GRAMS/MILE
     WEIGHTED MASS CO2   1156.70 GRAMS/MILE
     WEIGHTED MASS NOX     14.87 GRAMS/MILE
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                    TABLE  A-96.           VEHICLE EMISSION RESULTS
                                    PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  243        TEST NO. 2        DATE  4/26/73                 MFGR. CODE  720              YR.  1972
VEHICLE MODEL  D-22-C                  ENGINE   413 CID 8            CURB WT. 10120               GVW 13000

BAROMETER  29.08 IN.HG.                                            WET BULB TEMP 64.0 DEG. F
DRY BULB TEMP.  78.0 DEG. F                                        ABS. HUMIDITY 66.6 GRAINS/LB
REL. HUMIDITY      44 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                       1              2              3
     FINAL WT.,    GRAMS                         251.34         251.59         244.76
     INITIAL WT., GRAMS                          250.50         250.15         243.89
     DIFFERENCE    GRAMS                            .84           1.44            .87

     TOTAL EVAPORATIVE EMISSIONS                                           3.15 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                         BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                   BLOWER INLET TEMP.  108 DEG. F
     BAG RESULTS
     BAG NO.                                        1              2              3
     BLOWER REVOLUTIONS                         45861          71936          45245
     HC   SAMPLE  METER READING/SCALE          16.1/4         64.0/3         69.8/3
     HC   SAMPLE  PPM                          1610            640            698
     HC   BACKGRD METER READING/SCALE           2.7/3          2.8/3          2.4/3
     HC   BACKGRD PPM                            27             28             24
     CO   SAMPLE  METER READING/SCALE          62.4/1         36.6/1         43.3/1
     CO   SAMPLE  PPM                          7306           3033           3883
     CO   BACKGRD METER READING/SCALE            .3/2           .1/1           .1/1
     CO   BACKGRD PPM                             8              6              6
     CO2  SAMPLE  METER READING/SCALE          92.0/2         58.0/2         78.7/2
     CO2  SAMPLE  PERCENT                      2.93           1.67           2.41
     CO2  BACKGRD METER READING/SCALE           2.0/2          2.3/2          2.4/2
     CO2  BACKGRD PERCENT                       .05            .06            .06
     NOX  SAMPLE  METER READING/SCALE          32.3/4         73.5/3         37.9/4
     NOX  SAMPLE  PPM                         323.0          220.5          379.0
     NOX  BACKGRD METER READING/SCALE            .2/3          1.0/3           .4/3
     NOX  BACKGRD PPM                            .6            3.0            1.2

     HC   CONCENTRATION PPM                    1591            616            679
     CO   CONCENTRATION PPM                    6783           2887           3643
     CO2  CONCENTRATION PCT                    2.90           1.62           2.36
     NOX  CONCENTRATION PPM                   322.6          218.0          378.1
     HC   MASS GRAMS                          80.75          49.07          34.01
     CO   MASS GRAMS                         695.24         464.14         368.34
     CO2  MASS GRAMS                        4689.47        4124.68        3773.09
     NOX  MASS GRAMS                          52.25          55.38          60.42

     WEIGHTED MASS HC      13.76 GRAMS/MILE
     WEIGHTED MASS CO     124.74 GRAMS/MILE
     WEIGHTED MASS CO2   1105.58 GRAMS/MILE
     WEIGHTED MASS NOX     14.97 GRAMS/MILE
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                    TABLE  A-97.           VEHICLE EMISSION RESULTS
                                      PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  244         TEST NO. 1           DATE  4/18/73                 MFGR. CODE   43                YR.  1967
VEHICLE MODEL  20                          ENGINE   250 CID 6            CURB WT.  4860                GVW  7500

BAROMETER  28.99 IN.HG.                                                 WET BULB TEMP 64.0 DEG. F
DRY BULB TEMP.  79.0 DEG. F                                             ABS. HUMIDITY 65.0 GRAINS/LB
REL. HUMIDITY     42 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                     1              2
     FINAL WT.,    GRAMS                     258.32         252.33
     INITIAL WT.,  GRAMS                     257.86         252.28
     DIFFERENCE    GRAMS                        .46            .05

     TOTAL EVAPORATIVE EMISSIONS                                            .51 GRAMS


EXHAUST EMISSIONS
                                                                        BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                              BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                      1              2              3
     BLOWER REVOLUTIONS                       33697          56148          33892
     HC    SAMPLE  METER READING/SCALE       88.0/3         59.4/3         73.3/3
     HC    SAMPLE  PPM                          880            594            733
     HC    BACKGRD METER READING/SCALE        2.8/3          2.8/3          2.6/3
     HC    BACKGRD PPM                           28             28             26
     CO    SAMPLE  METER READING/SCALE       77.1/2         78.6/2         86.9/2
     CO    SAMPLE  PPM                         3047           3131           3620
     CO    BACKGRD METER READING/SCALE        1.0/2           .6/2           .1/2
     CO    BACKGRD PPM                           28             17              3
     CO2   SAMPLE  METER READING/SCALE       78.9/2         51.0/2         74.2/2
     CO2   SAMPLE  PERCENT                     2.42           1.44           2.24
     CO2   BACKGRD METER READING/SCALE        2.6/2          2.1/2          2.0/2
     CO2   BACKGRD PERCENT                      .06            .05            .05
     NOX   SAMPLE  METER READING/SCALE       80.8/3         41.8/3         88.1/3
     NOX   SAMPLE  PPM                        242.4          125.4          264.3
     NOX   BACKGRD METER READING/SCALE        1.8/3          1.9/3          1.7/3
     NOX   BACKGRD PPM                          5.4            5.7            5.1

     HC    CONCENTRATION PPM                    858            570            712
     CO    CONCENTRATION PPM                   2842           2987           3413
     CO2   CONCENTRATION PCT                   2.37           1.40           2.20
     NOX   CONCENTRATION PPM                  238.1          120.5          260.2
     HC    MASS GRAMS                         31.50          34.87          26.31
     CO    MASS GRAMS                        210.73         369.06         254.50
     CO2   MASS GRAMS                       2770.60        2727.18        2593.62
     NOX   MASS GRAMS                         27.70          23.35          30.45

     WEIGHTED MASS HC       6.45 GRAMS/MILE
     WEIGHTED MASS CO      80.63 GRAMS/MILE
     WEIGHTED MASS CO2    719.59 GRAMS/MILE
     WEIGHTED MASS NOX      7.02 GRAMS/MILE
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                         TABLE  A-98.            VEHICLE EMISSION RESULTS
                                           PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  244        TEST NO. 2         DATE  4/19/73
VEHICLE MODEL  20                       ENGINE   250 CID 6           MFGR. CODE   43                 YR.  1967
                                                                     CURB WT.  4860                  GVW  7500

BAROMETER  28.84 IN.HG.
DRY BULB TEMP.  78.0 DEG. F                                         WET BULB TEMP 69.0 DEG. F
REL. HUMIDITY     61 PCT.                                           ABS. HUMIDITY 92.0 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                      1              2
     FINAL WT.,   GRAMS                        252.82         253.50
     INITIAL WT., GRAMS                        252.13         253.37
     DIFFERENCE   GRAMS                           .69            .13

     TOTAL EVAPORATIVE EMISSIONS
                                                                              .82 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                          BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                    BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                       1              2              3
     BLOWER REVOLUTIONS                        33677          55650          34160
     HC    SAMPLE  METER READING/SCALE          82.1/3         52.0/3         64.1/3
     HC    SAMPLE  PPM                           821            520            641
     HC    BACKGRD METER READING/SCALE          2.7/3          2.6/3          2.5/3
     HC    BACKGRD PPM                            27             26             25
     CO    SAMPLE  METER READING/SCALE         78.8/2         76.6/2         85.4/2
     CO    SAMPLE  PPM                          3142           3019           3528
     CO    BACKGRD METER READING/SCALE          2.2/2          1.5/2           .7/2
     CO    BACKGRD PPM                            62             42             20
     CO2   SAMPLE  METER READING/SCALE         75.2/2         48.6/2         71.7/2
     CO2   SAMPLE  PERCENT                      2.28           1.37           2.15
     CO2   BACKGRD METER READING/SCALE          3.1/2          2.4/2          2.3/2
     CO2   BACKGRD PERCENT                       .08            .06            .06
     NOX   SAMPLE  METER READING/SCALE         67.0/3         37.0/3         76.6/3
     NOX   SAMPLE  PPM                         201.0          111.0          229.8
     NOX   BACKGRD METER READING/SCALE           .5/3           .7/3           .4/3
     NOX   BACKGRD PPM                           1.5            2.1            1.2

     HC    CONCENTRATION PPM                     799            497            621
     CO    CONCENTRATION PPM                    2893           2844           3297
     CO2   CONCENTRATION PCT                    2.22           1.31           2.10
     NOX   CONCENTRATION PPM                   199.8          109.2          228.8
     HC    MASS GRAMS                          29.18          30.00          22.99
     CO    MASS GRAMS                         213.26         346.41         246.50
     CO2   MASS GRAMS                        2580.35        2527.09        2484.51
     NOX   MASS GRAMS                          26.29          23.74          30.54

     WEIGHTED MASS HC      7.42 GRAMS/MILE
     WEIGHTED MASS CO     77.15 GRAMS/MILE
     WEIGHTED MASS CO2   673.71 GRAMS/MILE
     WEIGHTED MASS NOX     6.99 GRAMS/MILE
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                        TABLE  A-99.          VEHICLE EMISSION RESULTS
                                        PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  245          TEST NO. 1          DATE  4/24/73                 MFGR. CODE   22                YR.  1972
VEHICLE MODEL   CHAMPION M-30              ENGINE    318 CID 8           CURB WT.  8930                 GVW 11000

BAROMETER  28.86 IN.HG.                                                 WET BULB TEMP 68.0 DEG. F
DRY BULB TEMP.  76.0 DEG. F                                             ABS. HUMIDITY 89.9 GRAINS/LB
REL. HUMIDITY     63 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                      1            2
     FINAL WT.,    GRAMS                        251.84       249.67
     INITIAL WT., GRAMS                         251.58       249.49
     DIFFERENCE    GRAMS                           .26          .18

     TOTAL EVAPORATIVE EMISSIONS                                             .44 GRAMS

EXHAUST EMISSIONS

                                                                        BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.0 IN. H2O                              BLOWER INLET TEMP.  114 DEG. F

     BAG RESULTS
     BAG NO.                                       1             2             3
     BLOWER REVOLUTIONS                         41082         67400         40653
     HC    SAMPLE  METER READING/SCALE           13.9/4        31.7/3        54.3/3
     HC    SAMPLE  PPM                          1390           317           543
     HC    BACKGRD METER READING/SCALE            2.1/3         2.8/3         2.3/3
     HC    BACKGRD PPM                           21            28            23
     CO    SAMPLE  METER READING/SCALE           76.2/1        63.8/2        60.7/1
     CO    SAMPLE  PPM                         11451          2357          6919
     CO    BACKGRD METER READING/SCALE            2.2/2         2.0/2         1.3/2
     CO    BACKGRD PPM                           62            57            37
     CO2   SAMPLE  METER READING/SCALE           90.7/2        53.6/2        83.8/2
     CO2   SAMPLE  PERCENT                       2.88          1.53          2.61
     CO2   BACKGRD METER READING/SCALE            2.5/2         2.9/2         2.3/2
     CO2   BACKGRD PERCENT                        .06           .07           .06
     NOX   SAMPLE  METER READING/SCALE           91.4/3        58.0/3        98.9/3
     NOX   SAMPLE  PPM                          274.2         174.0         296.7
     NOX   BACKGRD METER READING/SCALE            2.5/3         2.4/3         2.2/3
     NOX   BACKGRD PPM                            7.5           7.2           6.6

     HC    CONCENTRATION PPM                    1375           293           526
     CO    CONCENTRATION PPM                   10539          2191          6403
     CO2   CONCENTRATION PCT                     2.84          1.46          2.56
     NOX   CONCENTRATION PPM                    269.0         167.8         291.7
     HC    MASS GRAMS                            61.46         21.46         23.25
     CO    MASS GRAMS                           950.90        324.39        571.68
     CO2   MASS GRAMS                          4041.65       3423.97       3612.78
     NOX   MASS GRAMS                            42.88         43.87         46.02

     WEIGHTED MASS HC       8.15 GRAMS/MILE
     WEIGHTED MASS CO     141.22 GRAMS/MILE
     WEIGHTED MASS CO2    962.82 GRAMS/MILE
     WEIGHTED MASS NOX     11.81 GRAMS/MILE
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TABLE A-100. VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

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UNIT NO.  245          TEST NO. 2          DATE   4/25/73
VEHICLE MODEL  CHAMPION M-30               ENGINE   318 CID 8          MFGR. CODE   22                 YR.  1972
                                                                       CURB WT.  8930                  GVW 11000

BAROMETER  28.90 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                       WET BULB TEMP 68.0 DEG. F
REL. HUMIDITY      51 PCT.                                        ABS. HUMIDITY 88.3 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                   1              2
     FINAL WT.,   GRAMS                    246.83         251.35
     INITIAL WT., GRAMS                    246.10         250.91
     DIFFERENCE   GRAMS                       .73            .44

     TOTAL EVAPORATIVE EMISSIONS                                            1.17 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                        BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                  BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                    1              2              3
     BLOWER REVOLUTIONS                     41561          69263          40542
     HC   SAMPLE  METER READING/SCALE      13.3/4         33.7/3         52.2/3
     HC   SAMPLE  PPM                        1330            337            522
     HC   BACKGRD METER READING/SCALE       2.0/3          2.8/3          2.6/3
     HC   BACKGRD PPM                          20             28             26
     CO   SAMPLE  METER READING/SCALE      75.4/1         65.4/2         58.3/1
     CO   SAMPLE  PPM                       11148           2435           6406
     CO   BACKGRD METER READING/SCALE        .6/2           .6/2           .4/2
     CO   BACKGRD PPM                          17             17             11
     CO2  SAMPLE  METER READING/SCALE      90.2/2         56.6/2         86.8/2
     CO2  SAMPLE  PERCENT                    2.86           1.63           2.72
     CO2  BACKGRD METER READING/SCALE       2.3/2          2.7/2          2.2/2
     CO2  BACKGRD PERCENT                     .06            .07            .05
     NOX  SAMPLE  METER READING/SCALE      86.8/3         60.0/3         30.5/4
     NOX  SAMPLE  PPM                       260.4          180.0          305.0
     NOX  BACKGRD METER READING/SCALE       2.5/3          3.1/3          2.2/3
     NOX  BACKGRD PPM                         7.5            9.3            6.6

     HC   CONCENTRATION PPM                  1316            313            503
     CO   CONCENTRATION PPM                 10305           2297           5937
     CO2  CONCENTRATION PCT                  2.82           1.57           2.68
     NOX  CONCENTRATION PPM                 255.2          172.0          300.1
     HC   MASS GRAMS                        59.94          23.76          22.33
     CO   MASS GRAMS                       947.67         352.09         532.57
     CO2  MASS GRAMS                      4094.72        3796.40        3800.00
     NOX  MASS GRAMS                        41.12          46.20          47.17

     WEIGHTED MASS HC       9.30 GRAMS/MILE
     WEIGHTED MASS CO     141.75 GRAMS/MILE
     WEIGHTED MASS CO2   1029.75 GRAMS/MILE
     WEIGHTED MASS NOX     12.10 GRAMS/MILE
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                    TABLE  A-101.              VEHICLE EMISSION RESULTS
                                        PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  246        TEST NO. 1
VEHICLE MODEL  M-30 BRAVE              DATE  5/ 2/73
                                       ENGINE    318 CID 8            MFGR. CODE  720
                                                                      CURB WT.   7070              YR.  1972
                                                                                                   GVW 11000
BAROMETER  29.20 IN.HG.
DRY BULB TEMP.  76.0 DEG. F
REL. HUMIDITY      64 PCT.                                         WET BULB TEMP 68.0 DEG. F
                                                                   ABS. HUMIDITY 89.9 GRAINS/LB
EVAPORATIVE EMISSIONS

    CANISTER
    FINAL WT.,    GRAMS                        1             2
    INITIAL WT., GRAMS                    249.51        255.95
    DIFFERENCE   GRAMS                    249.41        255.87
                                             .10           .08
    TOTAL EVAPORATIVE EMISSIONS
                                                                           .18 GRAMS
EXHAUST EMISSIONS


    BLOWER DIF. PRESS., G2,  17.5 IN. H20                          BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                   BLOWER INLET TEMP.  112 DEG. F
    BAG RESULTS
    BAG NO.
    BLOWER REVOLUTIONS                         1            2             3
    HC   SAMPLE  METER READING/SCALE       42756        69825         43373
    HC   SAMPLE  PPM                      79.4/3       40.6/3        50.5/3
    HC   BACKGRD METER READING/SCALE         794          406           505
    HC   BACKGRD PPM                       1.3/3        2.6/3         2.4/3
    CO   SAMPLE  METER READING/SCALE          13           26            24
    CO   SAMPLE  PPM                      92.6/2       57.3/2        68.9/2
    CO   BACKGRD METER READING/SCALE        3983         2052          2611
    CO   BACKGRD PPM                        .5/2         .5/2          .4/2
    CO2  SAMPLE  METER READING/SCALE          14           14            11
    CO2  SAMPLE  PERCENT                  85.5/2       50.8/2        73.1/2
    CO2  BACKGRD METER READING/SCALE        2.67         1.44          2.20
    CO2  BACKGRD PERCENT                   1.8/2        2.4/2         2.4/2
    NOX  SAMPLE  METER READING/SCALE         .04          .06           .06
    NOX  SAMPLE  PPM                      36.9/4       65.4/3        36.8/4
    NOX  BACKGRD METER READING/SCALE       369.0        196.2         368.0
    NOX  BACKGRD PPM                       1.9/3        1.8/3         2.3/3
                                             5.7          5.4           6.9
    HC   CONCENTRATION PPM
    CO   CONCENTRATION PPM                   784          383           485
    CO2  CONCENTRATION PCT                  3685         1940          2437
    NOX  CONCENTRATION PPM                  2.64         1.38          2.15
    HC   MASS GRAMS                        364.6        191.5         362.4
    CO   MASS GRAMS                        37.01        29.54         23.25
    CO2  MASS GRAMS                       351.14       301.99        235.60
    NOX  MASS GRAMS                      3969.65      3402.07       3287.16
                                           61.39        52.65         61.90
    WEIGHTED MASS HC       7.83 GRAMS/MILE
    WEIGHTED MASS CO      78.30 GRAMS/MILE
    WEIGHTED MASS CO2    931.03 GRAMS/MILE
    WEIGHTED MASS NOX     15.24 GRAMS/MILE
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                    TABLE  A-102.        VEHICLE EMISSION RESULTS
                                  PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  246        TEST NO. 2          DATE  5/ 3/73                 MFGR. CODE  720          YR.  1972
VEHICLE MODEL  M-30 BRAVE                ENGINE   318 CID 8             CURB WT.  7070           GVW 11000

BAROMETER  29.51 IN.HG.                                                WET BULB TEMP 54.0 DEG. F
DRY BULB TEMP.  68.0 DEG. F                                            ABS. HUMIDITY 39.6 GRAINS/LB
REL. HUMIDITY     37 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                     1            2
     FINAL WT.,   GRAMS                      248.95       251.61
     INITIAL WT., GRAMS                      248.84       251.58
     DIFFERENCE   GRAMS                         .11          .03

     TOTAL EVAPORATIVE EMISSIONS                                         .14 GRAMS

EXHAUST EMISSIONS

                                                                       BLOWER INLET PRESS., G1  17.5 IN. H20
     BLOWER DIF. PRESS., G2,  17.5 IN. H20                             BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                      1            2            3
     BLOWER REVOLUTIONS                       41258        71052        42069
     HC   SAMPLE  METER READING/SCALE        72.5/3       35.3/3       51.3/3
     HC   SAMPLE  PPM                           725          353          513
     HC   BACKGRD METER READING/SCALE         1.5/3        2.1/3        2.2/3
     HC   BACKGRD PPM                            15           21           22
     CO   SAMPLE  METER READING/SCALE        89.3/2       50.1/2       61.3/2
     CO   SAMPLE  PPM                          3770         1735         2237
     CO   BACKGRD METER READING/SCALE          .6/2         .5/2         .6/2
     CO   BACKGRD PPM                            17           14           17
     CO2  SAMPLE  METER READING/SCALE        86.3/2       49.9/2       77.5/2
     CO2  SAMPLE  PERCENT                      2.70         1.41         2.36
     CO2  BACKGRD METER READING/SCALE         1.4/2        2.0/2        2.2/2
     CO2  BACKGRD PERCENT                       .03          .05          .05
     NOX  SAMPLE  METER READING/SCALE        41.9/4       72.3/3       46.9/4
     NOX  SAMPLE  PPM                         419.0        216.9        469.0
     NOX  BACKGRD METER READING/SCALE         1.0/3        2.5/3        2.3/3
     NOX  BACKGRD PPM                           3.0          7.5          6.9

     HC   CONCENTRATION PPM                     714          335          495
     CO   CONCENTRATION PPM                    3516         1655         2045
     CO2  CONCENTRATION PCT                    2.68         1.36         2.32
     NOX  CONCENTRATION PPM                   416.7        210.3        463.5
     HC   MASS GRAMS                          32.97        26.62        23.34
     CO   MASS GRAMS                         328.03       265.89       199.36
     CO2  MASS GRAMS                        3944.53      3460.88      3486.75
     NOX  MASS GRAMS                          54.75        47.58        62.09

     WEIGHTED MASS HC       7.21 GRAMS/MILE
     WEIGHTED MASS CO      69.41 GRAMS/MILE
     WEIGHTED MASS CO2    952.60 GRAMS/MILE
     WEIGHTED MASS NOX     14.20 GRAMS/MILE
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                           TABLE  A-103.         VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  246        TEST NO. 3          DATE  5/ 4/73                   MFGR. CODE  720                 YR.  1972
VEHICLE MODEL  M-30   BRAVE              ENGINE   318 CID 8              CURB WT.  7070                  GVW 11000


BAROMETER  29.44 IN.HG.                                                WET BULB TEMP 59.0 DEG. F
DRY BULB TEMP.  73.0 DEG. F                                            ABS. HUMIDITY 52.0 GRAINS/LB
REL. HUMIDITY     41 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                      1              2
     FINAL WT.,    GRAMS                      252.87         254.05
     INITIAL WT., GRAMS                      252.70         254.03
     DIFFERENCE    GRAMS                         .17            .02

     TOTAL EVAPORATIVE EMISSIONS                                              .19 GRAMS


EXHAUST EMISSIONS

                                                                       BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                             BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                       1              2              3
     BLOWER REVOLUTIONS                        41698          70616          41850
     HC    SAMPLE  METER READING/SCALE          71.0/3         27.8/3         33.9/3
     HC    SAMPLE  PPM                          710            278            339
     HC    BACKGRD METER READING/SCALE           1.5/3          2.3/3          2.3/3
     HC    BACKGRD PPM                           15             23             23
     CO    SAMPLE  METER READING/SCALE          88.6/2         51.8/2         56.9/2
     CO    SAMPLE  PPM                         3726           1808           2034
     CO    BACKGRD METER READING/SCALE            .4/2           .6/2           .8/2
     CO    BACKGRD PPM                           11             17             23
     CO2   SAMPLE  METER READING/SCALE          80.0/2         51.2/2         62.2/2
     CO2   SAMPLE  PERCENT                      2.46           1.45           1.82
     CO2   BACKGRD METER READING/SCALE           2.3/2          2.3/2          2.8/2
     CO2   BACKGRD PERCENT                       .06            .06            .07
     NOX   SAMPLE  METER READING/SCALE          82.8/3         52.9/3         77.7/3
     NOX   SAMPLE  PPM                         248.4          158.7          233.1
     NOX   BACKGRD METER READING/SCALE            .7/3          1.6/3          1.6/3
     NOX   BACKGRD PPM                          2.1            4.8            4.8

     HC    CONCENTRATION PPM                    698            258            320
     CO    CONCENTRATION PPM                   3491           1719           1917
     CO2   CONCENTRATION PCT                   2.41           1.40           1.76
     NOX   CONCENTRATION PPM                  246.8          154.5          229.0
     HC    MASS GRAMS                         32.53          20.34          14.94
     CO    MASS GRAMS                        328.38         273.77         180.94
     CO2   MASS GRAMS                       3586.38        3520.12        2618.83
     NOX   MASS GRAMS                         34.41          36.48          32.05

     WEIGHTED MASS HC       5.71 GRAMS/MILE
     WEIGHTED MASS CO      69.08 GRAMS/MILE
     WEIGHTED MASS CO2    874.00 GRAMS/MILE
     WEIGHTED MASS NOX      9.27 GRAMS/MILE
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TABLE A-104.

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                                      VEHICLE EMISSION RESULTS
                               PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  246       TEST NO. 4
VEHICLE MODEL  M-30  BRAVE            DATE  5/ 5/73                    MFGR. CODE  720             YR.  1972
                                      ENGINE   318 CID 6               CURB WT.   7070             GVW 11000

BAROMETER  29.74 IN.HG.
DRY BULB TEMP.  70.0 DEG. F                                          WET BULB TEMP 65.0 DEG. F
REL. HUMIDITY      73 PCT.                                           ABS. HUMIDITY 84.5 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                 1             2
     FINAL WT.,   GRAMS                    253.28        251.26
     INITIAL WT., GRAMS                    253.13        251.21
     DIFFERENCE   GRAMS                       .15           .05

     TOTAL EVAPORATIVE EMISSIONS
                                                                  .20 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                       BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                 BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                  1             2             3
     BLOWER REVOLUTIONS                   41386         72158         42579
     HC   SAMPLE  METER READING/SCALE       77.5/3        31.3/3        43.2/3
     HC   SAMPLE  PPM                     775           313           432
     HC   BACKGRD METER READING/SCALE       1.4/3         2.3/3         2.3/3
     HC   BACKGRD PPM                      14            23            23
     CO   SAMPLE  METER READING/SCALE      47.1/1        63.0/2        83.2/2
     CO   SAMPLE  PPM                    4430          2319          3396
     CO   BACKGRD METER READING/SCALE        .7/2          .5/2          .1/2
     CO   BACKGRD PPM                      20            14             3
     CO2  SAMPLE  METER READING/SCALE      80.3/2        53.2/2        82.6/2
     CO2  SAMPLE  PERCENT                 2.47          1.51          2.56
     CO2  BACKGRD METER READING/SCALE       2.7/2         2.8/2         2.9/2
     CO2  BACKGRD PERCENT                   .07           .07           .07
     NOX  SAMPLE  METER READING/SCALE      72.0/3        46.6/3        93.9/3
     NOX  SAMPLE  PPM                     216.0         139.8         281.7
     NOX  BACKGRD METER READING/SCALE       1.8/3          .6/3          .9/3
     NOX  BACKGRD PPM                       5.4           1.8           2.7

     HC   CONCENTRATION PPM               764           293           414
     CO   CONCENTRATION PPM              4099          2184          3146
     CO2  CONCENTRATION PCT               2.42          1.45          2.50
     NOX  CONCENTRATION PPM             211.8         138.2         279.6
     HC   MASS GRAMS                      35.08         23.46         19.56
     CO   MASS GRAMS                     380.00        353.00        300.09
     CO2  MASS GRAMS                 -  3540.03       3710.58       3768.84
     NOX  MASS GRAMS                      33.75         38.41         45.84

     WEIGHTED MASS HC       6.63 GRAMS/MILE
     WEIGHTED MASS CO      91.66 GRAMS/MILE
     WEIGHTED MASS CO2    984.14 GRAMS/MILE
     WEIGHTED MASS NOX     10.54 GRAMS/MILE
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                         TABLE  A-105.          VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  247         TEST NO. 1          DATE  5/ 3/73                   MFGR. CODE   31                    YR.  1971
VEHICLE MODEL  CREW CAB 250               ENGINE   360 CID 8              CURB WT.  5070                   GVW  6100

BAROMETER  29.52 IN.HG.
DRY BULB TEMP.  72.0 DEG. F                                             WET BULB TEMP 57.0 DEG. F
REL. HUMIDITY      37 PCT.                                              ABS. HUMIDITY 45.1 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                         1            2
     FINAL WT.,    GRAMS                         256.82       249.07
     INITIAL WT., GRAMS                          256.54       249.06
     DIFFERENCE    GRAMS                            .28          .01

     TOTAL EVAPORATIVE EMISSIONS
                                                                       .29 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H20                            BLOWER INLET PRESS., G1  17.5 IN. H20
                                                                      BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                          1            2            3
     BLOWER REVOLUTIONS                           42164        71466        42976
     HC    SAMPLE  METER READING/SCALE           12.3/4       48.0/3       61.4/3
     HC    SAMPLE  PPM                             1230          480          614
     HC    BACKGRD METER READING/SCALE            1.6/3        2.5/3        1.5/3
     HC    BACKGRD PPM                               16           25           15
     CO    SAMPLE  METER READING/SCALE           65.7/1       44.5/2       57.0/2
     CO    SAMPLE  PPM                             8121         1502         2038
     CO    BACKGRD METER READING/SCALE             .5/2         .5/1         .3/2
     CO    BACKGRD PPM                               14           29            8
     CO2   SAMPLE  METER READING/SCALE           63.2/2       41.7/2       60.6/2
     CO2   SAMPLE  PERCENT                         1.85         1.15         1.76
     CO2   BACKGRD METER READING/SCALE            2.0/2        1.8/2        1.3/2
     CO2   BACKGRD PERCENT                          .05          .04          .03
     NOX   SAMPLE  METER READING/SCALE           39.2/3       24.9/3       54.6/3
     NOX   SAMPLE  PPM                            117.6         74.7        163.8
     NOX   BACKGRD METER READING/SCALE             .9/3         .8/3         .4/3
     NOX   BACKGRD PPM                              2.7          2.4          1.2

     HC    CONCENTRATION PPM                       1217          458          601
     CO    CONCENTRATION PPM                       7724         1425         1938
     CO2   CONCENTRATION PCT                       1.81         1.11         1.73
     NOX   CONCENTRATION PPM                      115.5         72.5        162.8
     HC    MASS GRAMS                             57.51        36.64        28.95
     CO    MASS GRAMS                            736.77       230.37       188.38
     CO2   MASS GRAMS                           2727.44      2834.74      2661.82
     NOX   MASS GRAMS                             15.87        16.90        22.80

     WEIGHTED MASS HC       10.38 GRAMS/MILE
     WEIGHTED MASS CO       87.27 GRAMS/MILE
     WEIGHTED MASS CO2     736.64 GRAMS/MILE
     WEIGHTED MASS NOX       4.90 GRAMS/MILE
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               TABLE A-106.         VEHICLE EMISSION RESULTS
                                PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  247          TEST NO. 2           DATE -0/-0/-0                MFGR. CODE   31                 YR.  1971
VEHICLE MODEL   CREW CAB 250               ENGINE   360 CID 8            CURB WT.  5070                 GVW  6100

BAROMETER  29.44 IN.HG.                                            WET BULB TEMP 62.0 DEG. F
DRY BULB TEMP.  75.0 DEG. F                                        ABS. HUMIDITY 62.1 GRAINS/LB
REL. HUMIDITY      46 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                       1              2
     FINAL WT.,    GRAMS                         251.53         253.38
     INITIAL WT., GRAMS                          251.45         253.33
     DIFFERENCE    GRAMS                            .08            .05

     TOTAL EVAPORATIVE EMISSIONS                                                .13 GRAMS

EXHAUST EMISSIONS

                                                                   BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                         BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                        1              2              3
     BLOWER REVOLUTIONS                           42947          69951          40000
     HC    SAMPLE  METER READING/SCALE             13.1/4         46.7/3         62.4/3
     HC    SAMPLE  PPM                            1310            467            624
     HC    BACKGRD METER READING/SCALE              1.9/3          2.2/3          2.5/3
     HC    BACKGRD PPM                             19             22             25
     CO    SAMPLE  METER READING/SCALE            67.3/1         50.8/2         62.6/2
     CO    SAMPLE  PPM                            8550           1765           2299
     CO    BACKGRD METER READING/SCALE              1.0/2          1.1/2           .8/2
     CO    BACKGRD PPM                             28             31             23
     CO2   SAMPLE  METER READING/SCALE            64.0/2         42.1/2         59.5/2
     CO2   SAMPLE  PERCENT                        1.88           1.16           1.72
     CO2   BACKGRD METER READING/SCALE              3.0/2          2.3/2          2.5/2
     CO2   BACKGRD PERCENT                         .08            .06            .06
     NOX   SAMPLE  METER READING/SCALE            35.3/3         21.7/3         51.0/3
     NOX   SAMPLE  PPM                           105.9           65.1          153.0
     NOX   BACKGRD METER READING/SCALE               .4/3          1.4/3           .9/3
     NOX   BACKGRD PPM                             1.2            4.2            2.7

     HC    CONCENTRATION PPM                      1295            447            603
     CO    CONCENTRATION PPM                      8092           1671           2170
     CO2   CONCENTRATION PCT                      1.82           1.11           1.67
     NOX   CONCENTRATION PPM                     105.0           61.3          150.7
     HC    MASS GRAMS                            62.14          34.96          26.94
     CO    MASS GRAMS                           783.99         263.75         195.80
     CO2   MASS GRAMS                          2782.64        2769.67        2380.84
     NOX   MASS GRAMS                            15.75          14.99          21.06

     WEIGHTED MASS HC       10.27 GRAMS/MILE
     WEIGHTED MASS CO       95.00 GRAMS/MILE
     WEIGHTED MASS CO2     709.77 GRAMS/MILE
     WEIGHTED MASS NOX      4.50 GRAMS/MILE
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                    TABLE A-107.          VEHICLE EMISSION RESULTS
                                  PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  248        TEST NO. 1          DATE  5/ 3/73                 MFGR. CODE   31                 YR.  1973
VEHICLE MODEL  F-250 CUSTOM              ENGINE   360 CID 8            CURB WT.  4310                 GVW  7500

BAROMETER  29.52 IN.HG.                                               WET BULB TEMP 59.0 DEG. F
DRY BULB TEMP.  77.0 DEG. F                                           ABS. HUMIDITY 45.5 GRAINS/LB
REL. HUMIDITY     32 PCT.

EVAPORATIVE EMISSIONS

     CANISTER                                  1            2
     FINAL WT.,   GRAMS                     251.83       257.13
     INITIAL WT., GRAMS                     251.74       257.08
     DIFFERENCE   GRAMS                        .09          .05

     TOTAL EVAPORATIVE EMISSIONS                                               .14 GRAMS

EXHAUST EMISSIONS

                                                                      BLOWER INLET PRESS., G1  17.5 IN. H2O
     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                            BLOWER INLET TEMP.  110 DEG. F

     BAG RESULTS
     BAG NO.                                   1            2            3
     BLOWER REVOLUTIONS                      41719        70596        42293
     HC   SAMPLE  METER READING/SCALE         42.1/3       16.2/3       34.4/3
     HC   SAMPLE  PPM                         421          162          344
     HC   BACKGRD METER READING/SCALE          1.7/3        2.2/3        1.6/3
     HC   BACKGRD PPM                          17           22           16
     CO   SAMPLE  METER READING/SCALE         93.3/2        8.5/2       12.3/2
     CO   SAMPLE  PPM                        4029          247          363
     CO   BACKGRD METER READING/SCALE           .3/2         .4/2         .4/2
     CO   BACKGRD PPM                           8           11           11
     CO2  SAMPLE  METER READING/SCALE         64.0/2       44.6/2       61.1/2
     CO2  SAMPLE  PERCENT                     1.80         1.24         1.78
     CO2  BACKGRD METER READING/SCALE          2.0/2        2.0/2        1.6/2
     CO2  BACKGRD PERCENT                      .05          .05          .04
     NOX  SAMPLE  METER READING/SCALE         48.7/3       29.8/3       68.8/3
     NOX  SAMPLE  PPM                        146.1         89.4        206.4
     NOX  BACKGRD METER READING/SCALE           .7/3         .6/3        1.7/3
     NOX  BACKGRD PPM                          2.1          1.8          5.1

     HC   CONCENTRATION PPM                   407          142          330
     CO   CONCENTRATION PPM                  3835          229          337
     CO2  CONCENTRATION PCT                   1.84         1.20         1.74
     NOX  CONCENTRATION PPM                  144.4         87.8        202.0
     HC   MASS GRAMS                         19.02        11.24        15.65
     CO   MASS GRAMS                        361.94        36.51        32.26
     CO2  MASS GRAMS                       2737.46      3014.35      2634.87
     NOX  MASS GRAMS                         19.66        20.22        27.88

     WEIGHTED MASS HC       3.78 GRAMS/MILE
     WEIGHTED MASS CO      28.07 GRAMS/MILE
     WEIGHTED MASS CO2    759.11 GRAMS/MILE
     WEIGHTED MASS NOX      5.94 GRAMS/MILE
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                         TABLE A-108.          VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  248        TEST NO. 2
VEHICLE MODEL  F-250 CUSTOM            DATE  5/ 4/73
                                       ENGINE    360 CID 8              MFGR. CODE   31
                                                                        CURB WT.  4310                 YR.  1973
                                                                                                       GVW  7500
BAROMETER  29.40 IN.HG.
DRY BULB TEMP.  73.0 DEG. F
REL. HUMIDITY     41 PCT.                                           WET BULB TEMP 59.0 DEG. F
                                                                    ABS. HUMIDITY 52.0 GRAINS/LB
EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,    GRAMS                       1               2
     INITIAL WT., GRAMS                   249.80          250.90
     DIFFERENCE    GRAMS                  249.60          250.86
                                             .20             .04
     TOTAL EVAPORATIVE EMISSIONS

EXHAUST EMISSIONS                                                       .24 GRAMS


     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                         BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                   BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                   1               2               3
     BLOWER REVOLUTIONS                    42261           71965           41724
     HC    SAMPLE  METER READING/SCALE      49.1/3          16.9/3          23.5/3
     HC    SAMPLE  PPM                      491             169             235
     HC    BACKGRD METER READING/SCALE       2.1/3           2.4/3           2.2/3
     HC    BACKGRD PPM                      21              24              22
     CO    SAMPLE  METER READING/SCALE      47.5/1           9.2/2           9.1/2
     CO    SAMPLE  PPM                    4491             268             265
     CO    BACKGRD METER READING/SCALE        .6/2            .6/2            .4/2
     CO    BACKGRD PPM                      17              17              11
     CO2   SAMPLE  METER READING/SCALE      69.4/2          46.9/2          64.0/2
     CO2   SAMPLE  PERCENT                  2.07            1.31            1.88
     CO2   BACKGRD METER READING/SCALE       2.6/2           2.9/2           3.3/2
     CO2   BACKGRD PERCENT                   .06             .07             .08
     NOX   SAMPLE  METER READ NG/SCALE      50.3/3          28.4/3          64.8/3
     NOX   SAMPLE  PPM                     150.9            85.2           194.4
     NOX   BACKGRD METER READI G/SCALE        .1/3            .6/3            .4/3
     NOX   BACKGRD PPM                        .3             1.8             1.2

     HC    CONCENTRATION PPM                474             147             216
     CO    CONCENTRATION PPM               4239             243             243
     CO2   CONCENTRATION PCT               2.02            1.25            1.81
     NOX   CONCENTRATION PPM              150.7            83.6           193.4
     HC    MASS GRAMS                     22.35           11.84           10.06
     CO    MASS GRAMS                    403.53           39.37           22.80
     CO2   MASS GRAMS                   3030.19         3193.00         2682.52
     NOX   MASS GRAMS                     21.26           20.09           26.94

     WEIGHTED MASS HC       3.62 GRAMS/MILE
     WEIGHTED MASS CO      30.12 GRAMS/MILE
     WEIGHTED MASS CO2    803.34 GRAMS/MILE
     WEIGHTED MASS NOX      5.94 GRAMS/MILE
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                         TABLE A-109          VEHICLE EMISSION RESULTS
                                          PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  249        TEST NO. 1          DATE  5/ 5/73
VEHICLE MODEL  OLSEN KURBMASTER          ENGINE   300 CID 6            MFGR. CODE   31                YR.  1973
                                                                       CURB WT.  6020                GVW 15000

BAROMETER  29.21 IN.HG.
DRY BULB TEMP.  72.0 DEG. F                                     WET BULB TEMP 66.0 DEG. F
REL. HUMIDITY     70 PCT.                                       ABS. HUMIDITY 86.2 GRAINS/LB

EVAPORATIVE EMISSIONS

   CANISTER
   FINAL WT.,   GRAMS                          1            2
   INITIAL WT., GRAMS                     248.72       252.78
   DIFFERENCE   GRAMS                     248.26       252.68
                                             .46          .10
   TOTAL EVAPORATIVE EMISSIONS
                                                                    .56 GRAMS

EXHAUST EMISSIONS


   BLOWER DIF. PRESS., G2,  17.5 IN. H20                       BLOWER INLET PRESS., G1  17.5 IN. H20
                                                               BLOWER INLET TEMP.  110 DEG. F
   BAG RESULTS
   BAG NO.
   BLOWER REVOLUTIONS                          1            2            3
   HC   SAMPLE  METER READING/SCALE        42170        71975        42290
   HC   SAMPLE  PPM                       57.2/3       23.3/3       40.9/3
   HC   BACKGRD METER READING/SCALE          572          233          409
   HC   BACKGRD PPM                        2.8/3         .7/3        2.2/3
   CO   SAMPLE  METER READING/SCALE           28            7           22
   CO   SAMPLE  PPM                       80.9/2       33.2/2       68.0/2
   CO   BACKGRD METER READING/SCALE         3262         1067         2565
   CO   BACKGRD PPM                        1.4/2        2.4/2         .4/2
   CO2  SAMPLE  METER READING/SCALE           40           68           11
   CO2  SAMPLE  PERCENT                   75.1/2       52.6/2       79.1/2
   CO2  BACKGRD METER READING/SCALE         2.28         1.49         2.42
   CO2  BACKGRD PERCENT                    2.2/2        1.1/2        2.6/2
   NOX  SAMPLE  METER READING/SCALE          .05          .03          .06
   NOX  SAMPLE  PPM                       52.7/3       25.8/3       66.4/3
   NOX  BACKGRD METER READING/SCALE        158.1         77.4        199.2
   NOX  BACKGRD PPM                         .2/3        2.3/3         .4/3
                                              .6          6.9          1.2
   HC   CONCENTRATION PPM
   CO   CONCENTRATION PPM                    550          227          391
   CO2  CONCENTRATION PCT                   3014          953         2378
   NOX  CONCENTRATION PPM                   2.23         1.47         2.37
   HC   MASS GRAMS                         157.6         71.3        198.2
   CO   MASS GRAMS                         25.68        18.09        18.35
   CO2  MASS GRAMS                        284.40       153.55       225.06
   NOX  MASS GRAMS                       3324.85      3740.78      3546.41
                                           25.78        19.92        32.52
   WEIGHTED MASS HC       5.28 GRAMS/MILE
   WEIGHTED MASS CO      53.88 GRAMS/MILE
   WEIGHTED MASS CO2    958.92 GRAMS/MILE
   WEIGHTED MASS NOX      6.61 GRAMS/MILE
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TABLE A-110.

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                                 VEHICLE EMISSION RESULTS
                            PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  249        TEST NO. 2         DATE  5/ 6/73
VEHICLE MODEL  OLSEN KURBMASTER         ENGINE    300 CID 6         MFGR. CODE   31                YR.  1973
                                                                    CURB WT.  6020                 GVW 15000

BAROMETER  29.04 IN.HG.
DRY BULB TEMP.  74.0 DEG. F                                       WET BULB TEMP 66.0 DEG. F
REL. HUMIDITY     63 PCT.                                         ABS. HUMIDITY 82.9 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                     1               2
     INITIAL WT., GRAMS                  249.90          255.33
     DIFFERENCE   GRAMS                  249.51          255.23
                                            .39             .10
     TOTAL EVAPORATIVE EMISSIONS
                                                                   .49 GRAMS

EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                        BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                  BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                      1               2               3
     HC   SAMPLE  METER READING/SCALE     41947           70158           41059
     HC   SAMPLE  PPM                      50.0/3          25.2/3          46.2/3
     HC   BACKGRD METER READING/SCALE     500             252             462
     HC   BACKGRD PPM                       2.6/3           2.7/3           2.7/3
     CO   SAMPLE  METER READING/SCALE      26              27              27
     CO   SAMPLE  PPM                      91.1/2          34.5/2          68.3/2
     CO   BACKGRD METER READING/SCALE    3885            1115            2580
     CO   BACKGRD PPM                       1.5/2           1.7/2           1.9/2
     CO2  SAMPLE  METER READING/SCALE      42              48              54
     CO2  SAMPLE  PERCENT                  86.1/2          56.7/2          77.7/2
     CO2  BACKGRD METER READING/SCALE      2.70            1.63            2.37
     CO2  BACKGRD PERCENT                   2.3/2           2.7/2           2.4/2
     NOX  SAMPLE  METER READING/SCALE       .06             .07             .06
     NOX  SAMPLE  PPM                      64.8/3          30.0/3          66.4/3
     NOX  BACKGRD METER READING/SCALE     194.4            90.0           199.2
     NOX  BACKGRD PPM                        .6/3            .9/3            .4/3
                                            1.8             2.7             1.2
     HC   CONCENTRATION PPM
     CO   CONCENTRATION PPM                480             229             440
     CO2  CONCENTRATION PCT               3572            1016            2368
     NOX  CONCENTRATION PPM                2.65            1.57            2.32
     HC   MASS GRAMS                      193.0            87.7           198.2
     CO   MASS GRAMS                       22.18           17.66           19.92
     CO2  MASS GRAMS                      333.26          158.56          216.21
     NOX  MASS GRAMS                     3906.38         3871.53         3351.59
                                           30.72           23.34           30.89
     WEIGHTED MASS HC       5.14 GRAMS/MILE
     WEIGHTED MASS CO      56.68 GRAMS/MILE
     WEIGHTED MASS CO2    994.89 GRAMS/MILE
     WEIGHTED MASS NOX      7.22 GRAMS/MILE
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                         TABLE  A-111.          VEHICLE EMISSION RESULTS
                                        PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  246          TEST NO. 5          DATE  5/ 5/73                  MFGR. CODE  720             YR.  1972
VEHICLE MODEL  [illegible]                 ENGINE   318 CID 8             CURB WT.  7070              GVW 11000
                                                                          TEST INERTIA 8900 LB.

BAROMETER  24.03 IN.HG.
DRY BULB TEMP.  74.0 DEG. F                                    WET BULB TEMP 65.0 DEG. F
REL. HUMIDITY      54 PCT.                                     ABS. HUMIDITY 78.0 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                        1              2
     FINAL WT.,   GRAMS                            -0.00          -0.00
     INITIAL WT., GRAMS                            -0.00          -0.00
     DIFFERENCE   GRAMS                             0.00           0.00

     TOTAL EVAPORATIVE EMISSIONS
                                                                        0.00 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., GP,  17.5 IN. H2O                     BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                               BLOWER INLET TEMP.  112 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                              1              2              3
     HC    SAMPLE  METER READING/SCALE             42287          70623          41158
     HC    SAMPLE  PPM                             87.4/3         35.3/3         50.2/3
     HC    BACKGRD METER READING/SCALE              874            353            502
     HC    BACKGRD PPM                             1.6/3          2.8/3          2.6/3
     CO    SAMPLE  METER READING/SCALE               16             28             26
     CO    SAMPLE  PPM                             53.5/1         32.6/1         44.4/1
     CO    BACKGRD METER READING/SCALE              5483           2584           4036
     CO    BACKGRD PPM                              .8/2           .9/1           .9/1
     CO2   SAMPLE  METER READING/SCALE               23             53             53
     CO2   SAMPLE  PERCENT                         89.1/2         55.1/2         82.4/2
     CO2   BACKGRD METER READING/SCALE             2.82           1.58           2.55
     CO2   BACKGRD PERCENT                         1.8/2          2.6/2          2.5/2
     NOX   SAMPLE  METER READING/SCALE              .04            .06            .06
     NOX   SAMPLE  PPM                             79.6/3         47.8/3         93.3/3
     NOX   BACKGRD METER READING/SCALE             238.8          143.4          279.9
     NOX   BACKGRD PPM                             1.8/3          1.8/3           .7/3
                                                    5.4            5.4            2.1
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                        862            329            482
     CO2   CONCENTRATION PCT                        5065           2412           3720
     NOX   CONCENTRATION PPM                        2.78           1.52           2.50
     HC    MASS GRAMS                              234.8          138.7          278.3
     CO    MASS GRAMS                              40.00          25.49          21.76
     CO2   MASS GRAMS                             474.47         377.36         339.21
     NOX   MASS GRAMS                            4115.49        3757.99        3603.66
                                                   36.64          36.17          42.27

     WEIGHTED MASS HC       7.35 GRAMS/MILE
     WEIGHTED MASS CO     104.90 GRAMS/MILE
     WEIGHTED MASS CO2   1017.90 GRAMS/MILE
     WEIGHTED MASS NOX     10.14 GRAMS/MILE
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                              TABLE  A-112.              VEHICLE EMISSION RESULTS
                                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  246          TEST NO. 6
VEHICLE MODEL  M-30  BRAVE                  DATE  5/ 2/73                    MFGR. CODE  720                  YR.  1972
                                            ENGINE   318 CID 8               CURB WT.  7070                   GVW 11000
                                                                             TEST INERTIA 9600 LB.
BAROMETER  28.95 IN.HG.
DRY BULB TEMP.  72.0 DEG. F                                                WET BULB TEMP 66.0 DEG. F
REL. HUMIDITY     64 PCT.                                                  ABS. HUMIDITY 86.2 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER
     FINAL WT.,   GRAMS                           1             2
     INITIAL WT., GRAMS                         -0.00         -0.00
     DIFFERENCE   GRAMS                         -0.00         -0.00
                                                 0.00          0.00
     TOTAL EVAPORATIVE EMISSIONS
                                                                             0.00 GRAMS
EXHAUST EMISSIONS


     BLOWER DIF. PRESS., G2.  17.5 IN. H2O                        BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                  BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.
     BLOWER REVOLUTIONS                            1             2             3
     HC    SAMPLE  METER READING/SCALE           42487         71974         41776
     HC    SAMPLE  PPM                            85.0/3        30.2/3        44.0/3
     HC    BACKGRD METER READING/SCALE           850           302           440
     HC    BACKGRD PPM                             1.7/3         1.8/3         1.6/3
     CO    SAMPLE  METER READING/SCALE            17            18            16
     CO    SAMPLE  PPM                            52.8/1        65.5/2        92.5/2
     CO    BACKGRD METER READING/SCALE           5359          2440          3976
     CO    BACKGRD PPM                              .8/2         0.0/2          .1/2
     CO2   SAMPLE  METER READING/SCALE            23             0             3
     CO2   SAMPLE  PERCENT                        95.5/2        55.0/2        81.4/2
     CO2   BACKGRD METER READING/SCALE           3.08          1.57          2.5
     CO2   BACKGRD PERCENT                         2.4/2         2.1/2         2.4/2
     NOX   SAMPLE  METER READING/SCALE             .06           .05           .06
     NOX   SAMPLE  PPM                            95.1/3        55.4/3        99.0/3
     NOX   BACKGRD METER READING/SCALE           285.3         166.2         297.0
     NOX   BACKGRD PPM                             2.2/3         3.3/3         1.9/3
                                                   6.6           9.4           5.7
     HC    CONCENTRATION PPM
     CO    CONCENTRATION PPM                     838           286           427
     CO2   CONCENTRATION PCT                    4905          2312          3692
     NOX   CONCENTRATION PPM                    3.03          1.53          2.47
     HC    MASS GRAMS                          280.5         157.7         292.5
     CO    MASS GRAMS                           39.07         22.64         19.61
     CO2   MASS GRAMS                          461.96        368.81        341.93
     NOX   MASS GRAMS                         4512.92       3850.67       3606.23
                                                45.80         43.61         46.97
     WEIGHTED MASS HC       6.75 GRAMS/MILE
     WEIGHTED MASS CO     101.65 GRAMS/MILE
     WEIGHTED MASS CO2   1046.24 GRAMS/MILE
     WEIGHTED MASS NOX     12.01 GRAMS/MILE
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TABLE A-113. VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO. 246 TEST NO. 7
VEHICLE MODEL M-30 4WAVE
DATE 5/ 8/73
ENGINE 318 CID 8
MFGR. CODE 720
CURB WT. 7070
TEST INERTIA 11200 LB.
YR. 1972
GVW 11000

BAROMETER 29.14 IN.HG.
DRY BULB TEMP. 73.0 DEG. F
REL. HUMIDITY 44 PCT.
WET BULB TEMP 60.0 DEG. F
ABS. HUMIDITY 56.3 GRAINS/LB

EVAPORATIVE EMISSIONS

CANISTER	1	2
FINAL WT., GRAMS	-0.00	-0.00
INITIAL WT., GRAMS	-0.00	-0.00
DIFFERENCE GRAMS	0.00	0.00

TOTAL EVAPORATIVE EMISSIONS 0.00 GRAMS

EXHAUST EMISSIONS

BLOWER DIF. PRESS., G2, 17.5 IN. H2O
BLOWER INLET PRESS., G1 17.5 IN. H2O
BLOWER INLET TEMP. 108 DEG. F

BAG RESULTS			
BAG NO.	1	2	3
BLOWER REVOLUTIONS	42125	71935	41847
HC SAMPLE METER READING/SCALE	89.0/3	33.3/3	44.4/3
HC SAMPLE PPM	890	333	444
HC BACKGRD METER READING/SCALE	1.1/3	2.5/3	2.2/3
HC BACKGRD PPM	11	25	22
CO SAMPLE METER READING/SCALE	54.6/1	70.0/2	92.2/2
CO SAMPLE PPM	5683	2667	3956
CO BACKGRD METER READING/SCALE	1.4/2	.7/2	.6/2
CO BACKGRD PPM	40	20	17
CO2 SAMPLE METER READING/SCALE	89.5/2	56.5/2	83.5/2
CO2 SAMPLE PERCENT	2.83	1.62	2.59
CO2 BACKGRD METER READING/SCALE	2.6/2	2.4/2	3.3/2
CO2 BACKGRD PERCENT	.06	.06	.08
NOX SAMPLE METER READING/SCALE	78.4/3	56.5/3	99.4/3
NOX SAMPLE PPM	235.2	169.5	298.2
NOX BACKGRD METER READING/SCALE	0.0/3	1.1/3	.6/3
NOX BACKGRD PPM	0.0	3.3	1.8
HC CONCENTRATION PPM	882	312	427
CO CONCENTRATION PPM	5263	2529	3689
CO2 CONCENTRATION PCT	2.78	1.57	2.53
NOX CONCENTRATION PPM	235.2	166.7	296.8
HC MASS GRAMS	41.21	24.86	19.82
CO MASS GRAMS	496.60	407.47	345.79
CO2 MASS GRAMS	4196.95	3999.36	3744.60
NOX MASS GRAMS	33.51	40.56	42.01

WEIGHTED MASS HC 7.18 GRAMS/MILE
WEIGHTED MASS CO 109.08 GRAMS/MILE
WEIGHTED MASS CO2 1155.60 GRAMS/MILE
WEIGHTED MASS NOX 10.52 GRAMS/MILE

TABLE A-114.

VEHICLE EMISSION RESULTS
PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO. 246 TEST NO. 8
VEHICLE MODEL M-30 BRAVE
DATE 5/ 9/73
ENGINE 319 CID 8
MFGR. CODE 720
CURB WT. 7070
TEST INERTIA 11200 LB.
YR.
GVW .

BAROMETER 24.15 IN.HG.
DRY BULB TEMP. 70.0 DEG. F
REL. HUMIDITY 53 PCT.
WET BULB TEMP 60.0 DEG. F
ABS. HUMIDITY 61.2 GRAINS/LB

EVAPORATIVE EMISSIONS

CANISTER	1	2
FINAL WT., GRAMS	-0.00	-0.00
INITIAL WT., GRAMS	-0.00	-0.00
DIFFERENCE GRAMS	0.00	0.00

TOTAL EVAPORATIVE EMISSIONS 0.00 GRAMS

EXHAUST EMISSIONS

BLOWER DIF. PRESS., G2, 17.5 IN. H2O
BLOWER INLET PRESS., G1 17.5
BLOWER INLET TEMP. 110 DEG. F

BAG RESULTS			
BAG NO.	1	2	3
BLOWER REVOLUTIONS	41366	70054	40788
HC SAMPLE METER READING/SCALE	97.3/3	34.1/3	45.0/3
HC SAMPLE PPM	973	341	450
HC BACKGRD METER READING/SCALE	2.2/3	2.5/3	2.5/3
HC BACKGRD PPM	22	25	25
CO SAMPLE METER READING/SCALE	55.1/1	71.3/2	91.9/2
CO SAMPLE PPM	5776	2735	3937
CO BACKGRD METER READING/SCALE	1.6/2	1.0/2	.9/2
CO BACKGRD PPM	45	28	25
CO2 SAMPLE METER READING/SCALE	90.1/2	56.8/2	79.9/2
CO2 SAMPLE PERCENT	2.86	1.63	2.46
CO2 BACKGRD METER READING/SCALE	2.5/2	2.3/2	2.8/2
CO2 BACKGRD PERCENT	.06	.06	.07
NOX SAMPLE METER READING/SCALE	95.2/3	59.2/3	93.0/3
NOX SAMPLE PPM	285.6	177.6	279.0
NOX BACKGRD METER READING/SCALE	1.8/3	2.6/3	.3/3
NOX BACKGRD PPM	5.4	7.8	.9
HC CONCENTRATION PPM	957	320	430
CO CONCENTRATION PPM	5327	2578	3664
CO2 CONCENTRATION PCT	2.81	1.58	2.40
NOX CONCENTRATION PPM	281.6	170.9	278.3
HC MASS GRAMS	43.77	24.76	19.41
CO MASS GRAMS	492.00	403.24	333.64
CO2 MASS GRAMS	4097.73	3912.66	3452.23
NOX MASS GRAMS	40.12	41.24	39.10

WEIGHTED MASS HC 7.29 GRAMS/MILE
WEIGHTED MASS CO 107.33 GRAMS/MILE
WEIGHTED MASS CO2 1018.99 GRAMS/MILE
WEIGHTED MASS NOX 10.77 GRAMS/MILE

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                         TABLE  A-115.          VEHICLE EMISSION RESULTS
                                       PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  250        TEST NO. 1         DATE  5/16/73              MFGR. CODE  215                YR.  1972
VEHICLE MODEL  CUSTOM 30                ENGINE   350 CID 8          CURB WT.  6540                GVW 10000

BAROMETER  29.28 IN.HG.
DRY BULB TEMP.  75.0 DEG. F                                    WET BULB TEMP 60.0 DEG. F
REL. HUMIDITY      39 PCT.                                     ABS. HUMIDITY 53.1 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                 1            2
     FINAL WT.,   GRAMS                     -0.00        -0.00
     INITIAL WT., GRAMS                     -0.00        -0.00
     DIFFERENCE   GRAMS                      0.00         0.00

     TOTAL EVAPORATIVE EMISSIONS                                      0.00 GRAMS

EXHAUST EMISSIONS

                                                               BLOWER INLET PRESS., G1  17.8 IN. H2O
     BLOWER DIF. PRESS., G2,  17.8 IN. H2O                     BLOWER INLET TEMP.  108 DEG. F

     BAG RESULTS
     BAG NO.                                  1            2            3
     BLOWER REVOLUTIONS                     40515        69965        41616
     HC   SAMPLE  METER READING/SCALE        80.3/3       39.3/3       52.0/3
     HC   SAMPLE  PPM                         803          399          520
     HC   BACKGRD METER READING/SCALE         4.5/3        4.0/3        2.3/3
     HC   BACKGRD PPM                          45           40           23
     CO   SAMPLE  METER READING/SCALE        66.3/1       52.8/2       49.7/1
     CO   SAMPLE  PPM                        8280         1851         4836
     CO   BACKGRD METER READING/SCALE          .9/2        0.0/1         .3/1
     CO   BACKGRD PPM                          25            0           18
     CO2  SAMPLE  METER READING/SCALE        82.6/2       28.6/2       79.7/2
     CO2  SAMPLE  PERCENT                    2.56          .76         2.45
     CO2  BACKGRD METER READING/SCALE         1.8/2        2.3/2        1.8/2
     CO2  BACKGRD PERCENT                     .04          .06          .04
     NOX  SAMPLE  METER READING/SCALE        64.6/3       31.7/3       90.3/3
     NOX  SAMPLE  PPM                       193.8         95.1        270.9
     NOX  BACKGRD METER READING/SCALE          .1/3        1.9/3        1.5/3
     NOX  BACKGRD PPM                          .3          5.7          4.5

     HC   CONCENTRATION PPM                   769          362          502
     CO   CONCENTRATION PPM                  7748         1803         4533
     CO2  CONCENTRATION PCT                  2.53          .71         2.41
     NOX  CONCENTRATION PPM                 193.6         89.9        267.4
     HC   MASS GRAMS                        34.71        28.19        23.26
     CO   MASS GRAMS                       705.65       283.14       424.10
     CO2  MASS GRAMS                      3632.45      1761.54      3564.66
     NOX  MASS GRAMS                        26.26        21.04        37.24

     WEIGHTED MASS HC       7.52 GRAMS/MILE
     WEIGHTED MASS CO     110.45 GRAMS/MILE
     WEIGHTED MASS CO2    714.05 GRAMS/MILE
     WEIGHTED MASS NOX      7.14 GRAMS/MILE
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TABLE A-116.

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                                                          VEHICLE EMISSION RESULTS
                                                    PROPOSED MEDIUM DUTY DRIVING SCHEDULE
UNIT NO.  250          TEST NO. 2            DATE  5/17/73
VEHICLE MODEL  CUSTOM 30                     ENGINE   350 CID 8              MFGR. CODE  215                  YR.  1972
                                                                             CURB WT.  6540                   GVW 10000

BAROMETER  29.29 IN.HG.
DRY BULB TEMP.  71.0 DEG. F
REL. HUMIDITY     62 PCT.                                                 WET BULB TEMP 63.0 DEG. F
                                                                          ABS. HUMIDITY 73.2 GRAINS/LB
EVAPORATIVE EMISSIONS

     CANISTER                                     1              2
     FINAL WT.,   GRAMS                         -0.00          -0.00
     INITIAL WT., GRAMS                         -0.00          -0.00
     DIFFERENCE   GRAMS                          0.00           0.00

     TOTAL EVAPORATIVE EMISSIONS                                                  0.00 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.8 IN. H2O                               BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                         BLOWER INLET TEMP.  108 DEG. F
     BAG RESULTS
     BAG NO.                                      1              2              3
     BLOWER REVOLUTIONS                         39921          69955          41305
     HC   SAMPLE  METER READING/SCALE            81.4/3         34.8/3         56.8/3
     HC   SAMPLE  PPM                            814            348            568
     HC   BACKGRD METER READING/SCA.E            3.3/3          2.5/3          2.4/3
     HC   BACKGRD PPM                            33             25             24
     CO   SAMPLE  METER RE.DING/SCALE            68.3/1         34.1/1         54.2/1
     CO   SAMPLE  PP.                           8831           2748           5610
     CO   BAC.G.D METER READING/SCALE            .6/1           .2/1          0.0/1
     CO   .ACKGRD PPM                            35             12             0
     CO2  SAMPLE  METER READING/SCALE            83.8/2         54.5/2         76.9/2
     CO2  SAMPLE  PERCENT                        2.61           1.56           2.34
     CO2  BACKGRD METER READING/SCALE            2.2/2          1.6/2          1.6/2
     CO2  BACKGRD PERCENT                        .05            .04            .04
     NOX  SAMPLE  METER READING/SCALE            57.9/3         36.8/3         74.5/3
     NOX  SAMPLE  PPM                           173.7          110.4          223.5
     NOX  BACKGRD METER READING/SCALE            1.7/3          1.6/3          1.7/3
     NOX  BACKGRD PPM                            5.1            4.8            5.1

     HC   CONCENTRATION PPM                      790            326            549
     CO   CONCENTRATION PPM                     8186           2601           5245
     CO2  CONCENTRATION PCT                      2.56           1.52           2.31
     NOX  CONCENTRATION PPM                     169.9          106.3          219.5
     HC   MASS GRAMS                             35.14          25.46          25.29
     CO   MASS GRAMS                            735.48         409.47         487.57
     CO2  MASS GRAMS                           3639.30        3785.83        3392.77
     NOX  MASS GRAMS                             24.87          27.26          33.24

     WEIGHTED MASS HC       7.33 GRAMS/MILE
     WEIGHTED MASS CO     133.82 GRAMS/MILE
     WEIGHTED MASS CO2    971.28 GRAMS/MILE
     WEIGHTED MASS NOX      7.59 GRAMS/MILE
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                    TABLE A-117.          VEHICLE EMISSION RESULTS
                                   PROPOSED MEDIUM DUTY DRIVING SCHEDULE

UNIT NO.  250        TEST NO. 3          DATE  5/18/73                MFGR. CODE  215                     1972
VEHICLE MODEL  CUSTOM 30                 ENGINE   350 CID 8           CURB WT.  6540                      10000

BAROMETER  29.19 IN.HG.
DRY BULB TEMP.  77.0 DEG. F                                        WET BULB TEMP 66.0 DEG. F
REL. HUMIDITY     54 PCT.                                          ABS. HUMIDITY 78.1 GRAINS/LB

EVAPORATIVE EMISSIONS

     CANISTER                                    1            2
     FINAL WT.,    GRAMS                     -0.00        -0.00
     INITIAL WT., GRAMS                      -0.00        -0.00
     DIFFERENCE    GRAMS                      0.00         0.00

     TOTAL EVAPORATIVE EMISSIONS                                     0.00 GRAMS

EXHAUST EMISSIONS

     BLOWER DIF. PRESS., G2,  17.5 IN. H2O                         BLOWER INLET PRESS., G1  17.5 IN. H2O
                                                                   BLOWER INLET TEMP.  110 DEG. F
     BAG RESULTS
     BAG NO.                                     1             2             3
     BLOWER REVOLUTIONS                      42482         72088         42074
     HC   SAMPLE  METER READING/SCALE       11.3/4        40.8/3        71.2/3
     HC   SAMPLE  PPM                        1130           408           712
     HC   BACKGRD METER READING/SCALE        2.5/3          .5/3         2.6/3
     HC   BACKGRD PPM                          25             5            26
     CO   SAMPLE  METER READING/SCALE       74.8/1        40.1/1        66.6/1
     CO   SAMPLE  PPM                       10926          3460          8360
     CO   BACKGRD METER READING/SCALE         .3/1          .8/1          .1/1
     CO   BACKGRD PPM                          18            47             6
     CO2  SAMPLE  METER READING/SCALE       91.2/2        57.2/2        82.9/2
     CO2  SAMPLE  PERCENT                    2.90          1.65          2.57
     CO2  BACKGRD METER READING/SCALE      2.[illegible]/2         2.9/2         1.7/2
     CO2  BACKGRD PERCENT                    .05           .07           .04
     NOX  SAMPLE  METER READING/SCALE       57.7/3        34.3/3        66.3/3
     NOX  SAMPLE  PPM                       173.1         102.9         198.9
     NOX  BACKGRD METER READING/SCALE        .5/3          .3/3          .3/3
     NOX  BACKGRD PPM                        1.5            .9            .9

     HC   CONCENTRATION PPM                  1113           404           693
     CO   CONCENTRATION PPM                 10114          3251          7796
     CO2  CONCENTRATION PCT                  2.86          1.58          2.54
     NOX  CONCENTRATION PPM                 172.1         102.1         198.2
     HC   MASS GRAMS                        52.34         32.23         32.27
     CO   MASS GRAMS                       960.70        523.99        733.44
     CO2  MASS GRAMS                      4292.98       4034.35       3772.10
     NOX  MASS GRAMS                        27.24         27.44         31.08

     WEIGHTED MASS HC       9.75 GRAMS/MILE
     WEIGHTED MASS CO     180.69 GRAMS/MILE
     WEIGHTED MASS CO2   1070.72 GRAMS/MILE
     WEIGHTED MASS NOX      7.58 GRAMS/MILE
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APPENDIX B

FEDERAL TEST PROCEDURE

federal register

WEDNESDAY, NOVEMBER 15, 1972
WASHINGTON, D.C.

Volume 37 ■ Number 221

PART II

THE NATIONAL ARCHIVES OF THE UNITED STATES
1934

ENVIRONMENTAL PROTECTION AGENCY

■

NEW MOTOR VEHICLES AND NEW MOTOR VEHICLE ENGINES

Control of Air Pollution

Title 40—PROTECTION OF ENVIRONMENT

Chapter I—Environmental Protection Agency

PART 85—CONTROL OF AIR POLLUTION FROM NEW MOTOR VEHICLES AND NEW MOTOR VEHICLE ENGINES

To facilitate the use of the motor vehicle regulations, and to eliminate confusion over the applicability of certain provisions to certain model years, all regulations applicable to new motor vehicles and new motor vehicle engines are herein republished in a new format.

Each subpart contains all the regulations applicable to a certain type of motor vehicle or motor vehicle engine, e.g., gasoline-fueled heavy duty engines. Within each subpart, general provisions are listed first, followed by regulations applicable to each successive model year. This recompilation begins with the 1973 model year, since the certification process for the 1972 model year is largely completed. Regulations applicable to the 1972 model year appear at 45 CFR Part 1201 (Supp. 1971), as amended at 36 F.R. 5342 (March 20, 1971) and at 36 F.R. 16905 (August 26, 1971).

The only substantive change contained in these regulations makes the definition of "model year", which the July 2, 1971, edition of the Federal Register (36 F.R. 12652) made applicable to the 1975 model year, applicable to the 1973 and 1974 model years as well. This change was prescribed by section 202 of the Clean Air Amendments of 1970 (Public Law 91–604), but was inadvertently omitted in prior publications.

Dated: November 9, 1972.

William D. Ruckelsha[illegible]
Administ[illegible]

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AUTHORITY: The provisions of this Part 85 issued under sections 202, 206, and 301(a) of the Clean Air Act, as amended (42 U.S.C. 1857f-1, 1857f-5, and 1857g(a)).

Subpart A—Emission Regulations for New Gasoline-Fueled Light Duty Vehicles

§ 85.001 General applicability.

(a) For the 1973 and 1974 model years, the provisions of this subpart are applicable to new gasoline-fueled light duty motor vehicles, except motorcycles and vehicles with an engine displacement of less than 50 cubic inches.

(b) For 1975 and later model years, the provisions of this subpart are applicable to new gasoline-fueled light duty motor vehicles, except motorcycles.

§ 85.002 Definitions.

(a) As used in this subpart, all terms not defined herein shall have the meaning given them in the Act:

(1) "Act" means Part A of title II of the Clean Air Act, 42 U.S.C. 1857 f-1 through f-7, as amended by Public Law 91-604.

(2) "Administrator" means the Administrator of the Environmental Protection Agency or his authorized representative.

(3) "Model year" means the manufacturer's annual production period (as determined by the Administrator) which includes January 1 of such calendar year: *Provided*, That if the manufacturer has no annual production period,

the term "model year" shall mean the calendar year.

(4) "Gross vehicle weight" means the manufacturer's gross weight rating for the individual vehicle.

(5) "Light duty vehicle" means any motor vehicle either designed primarily for transportation of property and rated at 6,000 pounds GVW or less or designed primarily for transportation of persons and having a capacity of 12 persons or less.

(6) "Off-road utility vehicle" means a light duty vehicle which incorporates special features for off-road operation such as four-wheel drive.

(7) "Motorcycle" means any light duty vehicle having a seat or saddle for the use of the rider and designed to travel on not more than three wheels (including any tricycle arrangement) in contact with the ground and weighing less than 1,500 pounds.

(8) "Vehicle curb weight" means the actual or the manufacturer's estimated weight of the vehicle in operational status with all standard equipment, and weight of fuel at nominal tank capacity, and the weight of optional equipment computed in accordance with § 85.073-5(g).

(9) "Loaded vehicle weight" means the vehicle curb weight of a light duty vehicle plus 300 pounds.

(10) "System" includes any motor vehicle engine modification which controls or causes the reduction of substances emitted from motor vehicles.

(11) "Engine family" means the basic classification unit of a manufacturer's product line used for the purpose of test fleet selection and determined in accordance with § 85.073–5(a).

(12) "Engine-system combination" means an engine family-exhaust emission control system-fuel evaporative emission control system (where applicable) combination.

(13) "Fuel system" means the combination of fuel tank, fuel pump, fuel lines, and carburetor, or fuel injection components, and includes all fuel system vents and fuel evaporative emission control systems.

(14) "Crankcase emissions" means airborne substances emitted to the atmosphere from any portion of the engine crankcase ventilation or lubrication systems.

(15) "Exhaust emissions" means substances emitted to the atmosphere from any opening downstream from the exhaust port of a motor vehicle engine.

(16) "Fuel evaporative emissions" means vaporized fuel emitted into the atmosphere from the fuel system of a motor vehicle.

(17) "Hot soak loss" means fuel evaporative emissions during the 1-hour hot soak period which begins immediately after the engine is turned off.

(18) "Diurnal breathing loss" means fuel evaporative emissions as a result of the daily range in temperature to which the fuel system is exposed.

(19) "Running loss" means fuel evaporative emissions resulting from an average trip in an urban area or the simulation of such a trip.

(20) "Tank fuel volume" means the volume of fuel in the fuel tank, prescribed to be 40 percent of nominal tank capacity rounded to the nearest whole U.S. gallon.

(21) Zero (0) miles means that point after initial engine starting (not to exceed 10 miles of vehicle operation) at which adjustments are completed.

(22) "Calibrating gas" means a gas of known concentration which is used to establish the response curve of an analyzer.

(23) "Span gas" means a gas of known concentration which is used routinely to set the output level of an analyzer.

(24) "Oxides of nitrogen" means the sum of the nitric oxide and nitrogen dioxide contained in a gas sample as if the nitric oxide were in the form of nitrogen dioxide.

(25) "Useful life" means a period of use of 5 years or 50,000 miles, whichever first occurs.

§ 85.003 Abbreviations.

The abbreviations used in this subpart have the following meanings in both capital and lowercase:

Accel—Acceleration.
ASTM—American Society for Testing and Materials.
C.—Centigrade.
C.f.h.—Cubic feet per hour.
CO_2—Carbon dioxide.
CO—Carbon monoxide.
Conc.—Concentration.
C.f.m.—Cubic feet per minute.
Cu. in.—Cubic inch(es).
Decel.—Deceleration.
EP—End point.
Evap.—Evaporated.
F.—Fahrenheit.
Gal.—U.S. gallon(s).
Gm.—Gram(s).
GVW—Gross Vehicle Weight.
HC—Hydrocarbon(s).
Hg—Mercury.
Hi.—High.
HP—Horsepower.
IBP—Initial boiling point.
ID—Internal diameter.
Lb.—Pound(s).
Lb.-ft.—Pound-feet.
Min.—Minute(s).
Ml.—Milliliter(s).
M.p.h.—Miles per hour.
Mm.—Millimeter(s).
Mv.—Millivolt(s).
N.—Nitrogen.
NO—Nitric oxide.
NO_2—Nitrogen dioxide.
NO_x—Oxides of nitrogen.
No.—Number.
Pb—Lead.
P.p.m.—Parts per million by volume.
P.s.i.—Pounds per square inch.
P.s.i.g.—Pounds per square inch gauge.
R.—Rankine.
R.p.m.—Revolutions per minute.
RVP—Reid vapor pressure.
S.A.E.—Society of Automotive Engineers.
Sec.—Second(s).
Sp.—Speed.
SS—Stainless steel.
TEL—Tetraethyl lead.
TML—Tetramethyl lead.
V.—Volts.
Vs.—Versus.
WOT—Wide open throttle.
Wt.—Weight.
'—Feet.
"—Inches.
°—Degrees.
%—Percent.

§ 85.004 General standards: increase in emissions; unsafe conditions.

(a) (1) Every new motor vehicle manufactured for sale, sold, offered for sale, introduced or delivered for introduction into commerce, or imported into the United States for sale or resale which is subject to any of the standards prescribed in this subpart shall be covered by a certificate of conformity issued pursuant to sections 85.073–2 through 85.073–4 and 85.073–29 through 85.073–34 of this subpart.

(b) (1) Any system installed on or incorporated in a new motor vehicle to enable such vehicle to conform to standards imposed by this subpart:

(i) Shall not in its operation or function cause the emission into the ambient air of any noxious or toxic substance that would not be emitted in the operation of such vehicle without such system, except as specifically permitted by regulation; and

(ii) Shall not in its operation, function, or malfunction result in any unsafe condition endangering the motor vehicle, its occupants, or persons or property in close proximity to the vehicle.

(2) Every manufacturer of new motor vehicles subject to any of the standards imposed by this subpart shall, prior to taking any of the actions specified in section 203(a)(1) of the Act, test or cause to be tested motor vehicles in accordance with good engineering practice to ascertain that such test vehicles will meet the requirements of this section for the useful life of the vehicle.

§ 85.005 Hearings on certification.

(a) (1) After granting a request for a hearing under § 85.073–30, the Administrator will designate a Presiding Officer for the hearing.

(2) The General Counsel will represent the Environmental Protection Agency in any hearing under this section.

(3) If a time and place for the hearing have not been fixed by the Administrator under § 85.073–30, the hearing shall be held as soon as practicable at a time and place fixed by the Administrator or by the Presiding Officer.

(b) (1) Upon his appointment pursuant to paragraph (a) of this section, the Presiding Officer will establish a hearing file. The file shall consist of the notice issued by the Administrator under § 85.073–30, together with any accompanying material, the request for a hearing and the supporting data submitted therewith and all documents relating to the request for certification, including the application for certification and all documents submitted therewith, and correspondence and other data material to the hearing.

(2) The appeal file will be available for inspection by the applicant at the office of the Presiding Officer.

(c) An applicant may appear in person, or may be represented by counsel or by any other duly authorized representative.

(d) (1) The Presiding Officer upon the request of any party, or in his discretion, may arrange for a prehearing dition or change. If the Administrator determines that test data will be required, he will notify the manufacturer to rescind the change within 5 days of receipt of the notification. The Administrator will then proceed as in § 85.073–32 (b) and (c), or § 85.073–33 (b) and (c) as appropriate.

(d) Election to produce vehicles under this section will be deemed to be a consent to recall all vehicles which the Administrator determines under § 85.073–32(c) do not meet applicable standards, and to cause such nonconformity to be remedied at no expense to the owner.

§ 85.073–35 Labeling.

(a)(1) The manufacturer of any light duty motor vehicle subject to the standards prescribed in § 85.073–1 shall, at the time of manufacture, affix a permanent, legible label, of the type and in the manner described below, containing the information hereinafter provided, to all production models of such vehicles available for sale to the public and covered by a certificate of conformity under § 85.073–30(a).

(2) A plastic or metal label shall be welded, riveted, or otherwise permanently attached in a readily visible position in the engine compartment.

(3) The label shall be affixed by the vehicle manufacturer, who has been issued the certificate of conformity for such vehicle, in such a manner that it cannot be removed without destroying or defacing the label, and shall not be affixed to any equipment which is easily detached from such vehicle.

(4) The label shall contain the following information lettered in the English language in block letters and numerals, which shall be of a color that contrasts with the background of the label:

(i) The label heading: Vehicle Emission Control Information;

(ii) Full corporate name and trademark of manufacturer;

(iii) Engine displacement (in cubic inches) and engine family identification;

(iv) Engine tuneup specifications and adjustments, as recommended by the manufacturer, including idle speed, ignition timing, and the idle air-fuel mixture setting procedure and value (e.g. idle CO, idle air-fuel ratio, idle speed drop). These specifications should indicate the proper transmission position during tuneup and what accessories (e.g., air-conditioner), if any should be in operation;

(v) The statement: "This Vehicle Conforms to U.S.E.P.A. Regulations Applicable to 1973 Model Year New Motor Vehicles."

(b) The provisions of this section shall not prevent a manufacturer from also reciting on the label that such vehicle conforms to any applicable State emission standards for new motor vehicles or any other information that such manufacturer deems necessary for, or useful to, the proper operation and satisfactory maintenance of the vehicle.

§ 85.073–36 Submission of vehicle identification numbers.

(a) The manufacturer of any light duty motor vehicle covered by a certificate of conformity under § 85.073–30(a) shall, not later than 60 days after its manufacture, submit to the Administrator the vehicle identification number of such vehicle: *Provided*, That this requirement shall not apply with respect to any vehicle manufactured within any State, as defined in section 302(d) of the Act.

(b) The requirements of this section may be waived with respect to any manufacturer who provides information satisfactory to the Administrator which will enable the Administrator to identify those vehicles which are covered by a certificate of conformity.

§ 85.073–37 Production vehicles.

(a) Any manufacturer obtaining certification under this subpart shall supply to the Administrator, upon his request, a reasonable number of production vehicles selected by the Administrator which are representative of the engines, emission control systems, fuel systems, and transmissions offered and typical of production models available for sale under the certificate. These vehicles shall be supplied for testing at such time and place and for such reasonable periods as the Administrator may require.

(b) Any manufacturer obtaining certification under this subpart shall notify the Administrator, on a quarterly basis, of the number of vehicles of each engine family - engine displacement - exhaust emission control system-fuel system-transmission type-inertia weight class combination produced for sale in the United States during the preceding quarter. A manufacturer may elect to provide this information every 60 days instead of quarterly, to combine it with the notification required under § 85.073–36.

(c) All light duty vehicles covered by a certificate of conformity under § 85.073–30(a) shall be adjusted by the manufacturer to the ignition timing specification detailed in § 85.073–35(a)(4)(iv).

§ 85.073–38 Maintenance instructions.

(a) The manufacturer shall furnish or cause to be furnished to the ultimate purchaser of each new motor vehicle subject to the standards prescribed in § 85.073–1, written instructions for the maintenance and use of the vehicle by the ultimate purchaser as may be reasonable and necessary to assure the proper functioning of emission control systems.

(1) Such instructions shall be provided for those vehicle and engine components listed in Appendix VI to this part (and for any other components) to the extent that maintenance of these components is necessary to assure the proper functioning of emission control systems.

(2) Such instructions shall be in clear, and to the extent practicable, nontechnical language.

(b) The maintenance instructions required by this section shall contain a general description of the documentation which the manufacturer will require from the ultimate purchaser or any subsequent purchaser as evidence of compliance with the instructions.

§ 85.073–39 Submission of maintenance instructions.

(a) The manufacturer shall provide to the Administrator, no later than the time of the submission required by § 85.073–4, a copy of the maintenance instructions which the manufacturer proposes to supply to the ultimate purchaser in accordance with § 85.073–38(a). The Administrator will review such instructions to determine whether they are reasonable and necessary to assure the proper functioning of the vehicle's emission control systems. The Administrator will notify the manufacturer of his determination whether such instructions are reasonable and necessary to assure the proper functioning of the emission control systems.

(b) Any revision to the maintenance instructions which will affect emissions shall be supplied to the Administrator at least 30 days before being supplied to the ultimate purchaser unless the Administrator consents to a lesser period of time.

§ 85.074–1 Emission standards for 1974 model year vehicles.

The standards and test procedures set forth in § 85.073 remain applicable for the 1974 model year.

§ 85.075–1 Emission standards for 1975 model year vehicles.

(a) (1) Exhaust emissions from 1975 model year vehicles shall not exceed:

(i) *Hydrocarbons*. 0.41 gram per vehicle mile.

(ii) *Carbon monoxide*. 3.4 grams per vehicle mile.

(iii) *Oxides of nitrogen*. 3.1 grams per vehicle mile.

(2) The standards set forth in paragraph (a)(1) of this section refer to the exhaust emitted over a driving schedule as set forth in § 85.075–9 through § 85.075–27 and measured and calculated in accordance with those procedures.

(b) (1) Fuel evaporative emissions shall not exceed:

(i) *Hydrocarbons*—2 grams per test.

(2) The standard set forth in paragraph (b)(1) of this section refers to a composite sample of the fuel evaporative emissions collected under the conditions set forth in § 85.075–9 through § 85.075–27 and measured in accordance with those procedures.

(c) No crankcase emissions shall be discharged into the ambient atmosphere from any new motor vehicle subject to this subpart.

(d) Every manufacturer of new motor vehicles subject to the standards prescribed in this subpart shall, prior to taking any of the actions specified in section 203 (a)(1) of the Act, test or cause to be tested motor vehicles in accordance with test procedures contained in § 85.075–9 through § 85.075–27 to ascertain that such test vehicles meet the requirements of paragraphs (a), (b), and (c) of this section, as applicable.

§ 85.075–2 Application for certification.

(a) An application for a certificate of conformity to the regulations applicable to any new motor vehicle shall be made to the Administrator by the manufacturer.

(b) The application shall be in writing, signed by an authorized representative of the manufacturer, and shall include the following:

(1) Identification and description of the vehicles covered by the application and a description of their emission control systems.

(2) Projected U.S. sales data sufficient to enable the Administrator to select a test fleet representative of the vehicles for which certification is requested.

(3) A description of the test equipment and fuel proposed to be used.

(4) A description of the proposed mileage accumulation procedure for durability testing.

(5) A statement of recommended maintenance and procedures necessary to assure that the vehicles covered by a certificate of conformity in operation conform to the regulations, and a description of the program for training of personnel for such maintenance, and the equipment required.

(6) At the option of the manufacturer, the proposed composition of the emission data and durability data test fleet.

§ 85.075–3 Approval of procedure and equipment; test fleet selections.

Based upon the information provided in the application for certification, and any other information the Administrator may require, the Administrator will approve or disapprove in whole or in part the mileage accumulation procedure and equipment and fuel proposed by the manufacturer, and notify him in writing of such determination. Where any part of a proposal is disapproved, such notification will specify the reasons for disapproval. The Administrator will select a test fleet in accordance with § 85.075–5.

§ 85.075–4 Required data.

The manufacturer shall perform the tests required by the applicable test procedures, and submit to the Administrator the following information:

(a) Durability data on such vehicles tested in accordance with the applicable test procedures of this subpart, and in such numbers as therein specified, which will show the performance of the systems installed on or incorporated in the vehicle for extended mileage, as well as a record of all pertinent maintenance performed on the test vehicles.

(b) Emission data on such vehicles tested in accordance with the applicable emission test procedures of this subpart and in such numbers as therein specified, which will show their emissions after zero miles and 4,000 miles of operation.

(c) A description of tests performed to ascertain compliance with the general standards in § 85.075–1 and the data derived from such tests.

(d) A statement that the test vehicles with respect to which data are submitted have been tested in accordance with the applicable test procedures, that they meet the requirement of such tests, and that, on the basis of such tests, they conform to the requirements of the regulations in this subpart. If such statements cannot be made with respect to any vehicle tested, the vehicle shall be identified, and all pertinent test data relating thereto shall be supplied.

§ 85.075–5 Test vehicles.

(a) (1) The vehicles covered by the application for certification will be divided into groupings of vehicles whose engines are expected to have similar emission characteristics. Each group of engines with similar emission characteristics shall be defined as a separate engine family.

(2) To be classed in the same engine family, engines must be identical in all the following respects:

(i) The cylinder bore center-to-center dimensions.

(ii) The dimension from the centerline of the crankshaft to the centerline of the camshaft.

(iii) The dimension from the centerline of the crankshaft to the top of the cylinder block head face.

(iv) The cylinder block configuration (air cooled or water cooled; L–6, 90° V–8, etc.).

(v) The location of intake and exhaust valves and the valve sizes (within a ⅛-inch range on the valve head diameter).

(vi) The method of air aspiration.

(vii) The combustion cycle.

(3) Engines identical in all the respects listed in subparagraph (2) of this paragraph may be further divided into different engine families if the Administrator determines that they may be expected to have different emission characteristics. This determination will be based upon a consideration of the following features of each engine:

(i) The bore and stroke.

(ii) The surface-to-volume ratio of the nominally dimensioned cylinder at the top dead center position.

(iii) The intake manifold induction port size and configuration.

(iv) The exhaust manifold port size and configuration.

(v) The intake and exhaust valve sizes.

(vi) The fuel system.

(vii) The camshaft timing and ignition timing characteristics.

(4) Where engines are of a type which cannot be divided into engine families based upon the criteria listed in subparagraphs (2) and (3) of this paragraph, the Administrator will establish families for those engines based upon the features most related to their emission characteristics.

(b) Emission data vehicles:

(1) Vehicles will be chosen to be operated and tested for emission data based upon the engine family groupings. Within each engine family, the requirements of this paragraph must be met.

(2) Vehicles of each engine family will be divided into engine displacement-exhaust emission control system-evaporative emission control system combinations. A projected sales volume will be established for each combination for the 1975 model year. One vehicle of each combination will be selected in order of decreasing projected sales volume until 70 percent of the projected sales of a manufacturer's total production of vehicles of that engine family is represented, or until a maximum of four vehicles is selected. If any single combination represents over 70 percent, then two vehicles of that combination will be selected. The vehicle selected for each combination will be specified by the Administrator as to transmission type, fuel system, and inertia weight class.

(3) The Administrator may select a maximum of four additional vehicles within each engine family based upon features indicating that they may have the highest emission levels of the vehicles in that engine family. In selecting these vehicles, the Administrator will consider such features as the emission control system combination, induction system characteristics, ignition system characteristics, fuel system, rated horsepower, rated torque, compression ratio, inertia weight class, transmission options, and axle ratios.

(4) If the vehicles selected in accordance with subparagraphs (2) and (3) of this paragraph do not represent each engine-system combination, then one vehicle of each engine-system combination not represented will be selected by the Administrator. The vehicle selected shall be of the engine displacement with the largest projected sales volume of vehicles with the control system combination in the engine family and will be designated by the Administrator as to transmission type, fuel system, and inertia weight class.

(c) Durability data vehicles:

(1) A durability data vehicle will be selected by the Administrator to represent each engine-system combination. The vehicle selected shall be of the engine displacement with the largest projected sales volume of vehicles with that control-system combination in that engine family and will be designated by the Administrator as to transmission type, fuel system, and inertia weight class.

(2) If an exhaust emission control system-fuel evaporative emission control system combination is used in only one engine family, an additional vehicle using that combination in that family will be selected so that the durability data fleet shall contain at least two vehicles with each combination. The additional vehicle will be selected in the same manner as vehicles selected under subparagraph (1) of this paragraph.

(3) A manufacturer may elect to operate and test additional vehicles to represent any engine-system combination. The additional vehicles must be of the same engine displacement, transmission type, fuel system, and inertia weight

class as the vehicle selected for that engine-system combination in accordance with the provisions of subparagraph (1) of this paragraph. Notice of an intent to operate and test additional vehicles shall be given to the Administrator not later than 30 days following notification of the test fleet selection.

(d) For purposes of testing under § 85.075–7(g), the Administrator may require additional emission data vehicles and durability data vehicles identical in all material respects to vehicles selected in accordance with paragraphs (b) and (c) of this section: *Provided*, That the number of vehicles selected shall not increase the size of either the emission data fleet or the durability data fleet by more than 20 percent or one vehicle, whichever is greater.

(e) Any manufacturer whose projected sales of new motor vehicles subject to this subpart for the 1975 model year is less than 2,000 vehicles may request a reduction in the number of test vehicles determined in accordance with the foregoing provisions of this section. The Administrator may agree to such lesser number as he determines would meet the objectives of this procedure.

(f) In lieu of testing an emission data or durability data vehicle selected under paragraph (b) or (c) of this section, and submitting data therefor, a manufacturer may, with the prior written approval of the Administrator, submit data on a simliar vehicle for which certification has previously been obtained.

(g) (1) Where it is expected that more than 33 percent of an engine family will be equipped with an optional item, the full estimated weight of that item shall be included in the curb weight computation for the entire engine family. Where it is expected that 33 percent or less of the vehicles in an engine family will be equipped with an item of optional equipment, no weight for that item will be added in computing curb weight. Optional equipment weighing less than 3 pounds per item need not be considered.

(2) Where it is expected that more than 33 percent of an engine family will be equipped with an item of optional equipment that can reasonably be expected to influence exhaust or evaporative emissions, then such items of optional equipment shall actually be installed on all emission data and durability data vehicles for such engine family.

§ 85.075–6 Maintenance.

(a) (1) Maintenance on the engines and fuel systems of durability vehicles may be performed only under the following provisions:

(i) One major engine tuneup to manufacturer's specificatons may be performed at 24,000 miles (±250 miles) of scheduled driving with the following exception: On a vehicle with an engine displacement of 150 cubic inches or less (or a rating of at least 1.20 maximum rated horsepower per cubic inch of displacement), major engine tuneups may be performed at 12,000, 24,000 and 36,000 miles (±250 miles) of scheduled driving. A major engine tuneup shall be restricted to the following:

(*a*) Replace spark plugs.

(*b*) Inspect ignition wiring and replace as required.

(*c*) Replace distributor breaker points and condensor as required.

(*d*) Lubricate distributor cam.

(*e*) Check distributor advance and breaker point dwell angle and adjust as required.

(*f*) Check automatic choke for free operation and correct as required.

(*g*) Adjust carburetor idle speed and mixture.

(*h*) Adjust drive belt tension on engine accessories.

(*i*) Adjust valve lash if required.

(*j*) Check exhaust heat control valve for free operation.

(*k*) Check engine bolt torque and tighten as required.

(ii) Spark plugs may be changed if a persistent misfire is detected.

(iii) Normal vehicle lubrication services (engine and transmission oil change and oil filter, fuel filter, and air filter servicing) will be allowed at manufacturer's recommended intervals.

(iv) The crankcase emission control system may be serviced at 12,000-mile intervals (±250 miles) of scheduled driving.

(v) The fuel evaporative emission control system may be serviced at 12,000-mile intervals (±250 miles) of scheduled driving.

(vi) Readjustment of the engine choke mechanism or idle settings may be performed only if there is a problem of stalling at stops.

(vii) Leaks in the fuel system, engine lubrication system and cooling system may be repaired.

(viii) Engine idle speed may be adjusted at the 4,000-mile test point.

(ix) Any other engine or fuel system maintenance or repairs will be allowed only with the advance approval of the Administrator.

(2) Repairs to vehicle components of the durability data vehicle, other than the engine or fuel system, shall be performed only as a result of part failure or vehicle system malfunction.

(3) Allowable maintenance on emission data vehicles shall be limited to the adjustment of engine idle speed at the 4,000-mile test point.

(4) Where the Administrator agrees under § 85.075–7 to a mileage accumulation of less than 50,000 miles for durability testing, he may modify the requirements of this paragraph.

(b) Complete emission tests (see § 85.075–10 through § 85.075–27) shall be run before and after any vehicle maintenance which may reasonably be expected to affect emissions. These test data shall be supplied to the Administrator immediately after the tests, along with a complete record of all pertinent maintenance, including an engineering report of any malfunction diagnosis and the corrective action taken. In addition, all test data and maintenance reports shall be compiled and provided to the Administrator in accordance with § 85.075–4.

(c) If the Administrator determines that maintenance or repairs performed have resulted in a substantial change to the engine-system combination, the vehicle shall not be used as a durability data vehicle.

§ 85.075–7 Mileage accumulation and emission measurements.

The procedure for mileage accumulation will be the Durability Driving Schedule as specified in Appendix IV to this part. A modified procedure may also be used if approved in advance by the Administrator.

(a) Emission data vehicles: Each emission data vehicle shall be driven 4,000 miles with all emission control systems installed and operating. Emission tests shall be conducted at zero miles and 4,000 miles.

(b) Durability data vehicles: Each durability data vehicle shall be driven, with all emission control systems installed and operating, for 50,000 miles or such lesser distance as the Administrator may agree to as meeting the objectives of this procedure. Emission measurements from a cold start shall be made at zero miles and at each 4,000-mile interval.

(c) All tests required by this subpart to be conducted after 4,000 miles of driving or at any multiple of 4,000 miles may be conducted at any accumulated mileage within 250 miles of 4,000 miles or the appropriate multiple of 4,000 miles, respectively.

(d) The results of each emission test shall be supplied to the Administrator immediately after the test. Where a manufacturer conducts multiple tests at any test point or any tests between test points, data on these tests (including voided tests) shall be provided immediately to the Administrator. In addition, all test data shall be compiled and provided to the Administrator in accordance with § 85.075–4.

(e) Whenever the manufacturer proposes to operate and test a vehicle which may be used for emission or durability data, he shall provide the zero mile test data to the Administrator and make the vehicle available for such testing under § 85.075–29 as the Administrator may require before beginning to accumulate mileage on the vehicle. Failure to comply with this requirement will invalidate all test data submitted for this vehicle.

(f) Once a manufacturer begins to operate an emission data or durability data vehicle, as indicated by compliance with paragraph (e) of this section, he shall continue to run the vehicle to 4,000 miles or 50,000 miles, respectively, and the data from the vehicle will be used in the calculations under § 85.075–28. Discontinuation of a vehicle shall be allowed only with the written consent of the Administrator.

(g)(1) The Administrator may elect to operate and test any test vehicle during all or any part of the mileage accumulation and testing procedure. In such cases, the manufacturer shall provide the vehicle(s) to the Administrator with all information necessary to conduct this testing.

(2) The test procedures in §§ 85.075-10 through 85.075-27 will be followed by the Administrator. The Administrator will test the vehicles at each test point. Maintenance may be performed by the manufacturer under such conditions as the Administrator may prescribe.

(3) The data developed by the Administrator for the engine-system combination shall be combined with any applicable data supplied by the manufacturer on other vehicles of that combination to determine the applicable deterioration factors for the combination. In the case of a significant discrepancy between data developed by the Administrator and that submitted by the manufacturer, the Administrator's data shall be used in the determination of deterioration factors.

§ 85.075-8 Special test procedures.

The Administrator may, on the basis of a written application therefor by a manufacturer, prescribe test procedures, other than those set forth in this subpart, for any motor vehicle which he determines is not susceptible to satisfactory testing by the procedures set forth herein.

§ 85.075-9 Test procedures.

The procedures described in this and subsequent sections will be the test program to determine the conformity of vehicles with the standards set forth in § 85.075-1.

(a) The test consists of prescribed sequences of fueling, parking, and operating conditions. The exhaust gases generated during vehicle operation are diluted with air and sampled continuously for subsequent analysis of specific components by prescribed analytical techniques. The fuel evaporative emissions are collected for subsequent weighing during both vehicle parking and operating events. The test applies to vehicles equipped with catalytic or direct-flame afterburners, induction system modifications, or other systems or to uncontrolled vehicles and engines.

(b) The exhaust emission test is designed to determine hydrocarbon, carbon monoxide, and oxides of nitrogen mass emissions while simulating an average trip in an urban area of 7.5 miles. The test consists of engine startups and vehicle operation on a chassis dynamometer through a specified driving schedule, as described in Appendix I to this part. A proportional part of the diluted exhaust emissions is collected continuously, for subsequent analysis, using a constant volume (variable dilution) sampler.

(c) The fuel evaporative emission test is designed to determine fuel hydrocarbon evaporative emissions to the atmosphere as a consequence of urban driving, and diurnal temperature fluctuations during parking. It is associated with a series of events representative of a motor vehicle's operation, which result in fuel vapor losses directly from the fuel tank and carburetor. Activated carbon traps are employed in collecting the vaporized fuel. The test procedure is specifically aimed at collecting and weighing:

(1) Diurnal breathing losses from the fuel tank and other parts of the fuel system when the fuel tank is subjected to a temperature increase representative of the diurnal range;

(2) Running losses from the fuel tank and carburetor resulting from a simulated trip on a chassis dynamometer; and

(3) Hot soak losses from the fuel tank and carburetor which result when the vehicle is parked and the hot engine is turned off.

(d) All emission control systems installed on or incorporated in a new motor vehicle shall be functioning during all test procedures in this subpart.

§ 85.075-10 Gasoline specifications.

(a) Fuel having the following specifications or substantially equivalent specifications approved by the Administrator, shall be used in exhaust and evaporative emission testing. The lead content and octane rating of the fuel shall be in the range recommended by the vehicle or engine manufacturer.

Item	ASTM designation	Specifications
Distillation range	D 86	
IBP, ° F		75-95
10 percent point, ° F		120-135
50 percent point, ° F		200-230
90 percent point, ° F		300-325
EP, ° F (max.)		415
Sulfur, wt. percent, max.	D 1266	0.10
Phosphorous, theory		0.0
RVP,[1] lb	D 323	8.7-9.2
Hydrocarbon composition	D 1319	
Olefins, percent, max.		10
Aromatics, percent, max.		35
Saturates		Remainder

[1] For testing which is unrelated to fuel evaporative emission control, the specified range is 8.0-9.2.

(b) Fuels representative of commercial fuels which will generally be available through retail outlets shall be used in mileage accumulation. The lead content and octane rating of the fuel used shall be in the range recommended by the vehicle or engine manufacturer. The Reid vapor pressure of the fuel used shall be characteristic of the motor fuel during the season during which the mileage accumulation takes place.

(c) The specification range of the fuels to be used under paragraph (b) of this section shall be reported in accordance with § 85.075-2(b)(3).

§ 85.075-11 Vehicle and engine preparation (fuel evaporative emissions).

(a)(1) Apply approximate leak-proof fittings to all fuel system external vents to permit collection of effluent vapors from these vents during the course of the prescribed tests. Since the prescribed test requires the temporary plugging of the inlet pipe to the air cleaner, it will be necessary to install a probe for collecting the normal effluents from this source. Where antisurge/vent filler caps are employed on the fuel tank, plug off the normal vent if it does not conveniently lend itself to the collection of vapors which emanate from it, and introduce a separate vent, with appropriate fitting, on the cap. Where the fuel tank vent line terminus is inaccessible, sever the line at a convenient point near the fuel tank and install the collection system in a closed circuit assembly with the severed ends. All fittings shall terminate in $^5/_{16}$-inch ID tube sections for ready connection to the collection systems and shall be designed for minimum dead space.

(2) The design and installation of the necessary fittings shall not disturb the normal function of the fuel system components or the normal pressure relationships in the system.

(b)(1) Inspect the fuel system carefully to insure the absence of any leaks to the atmosphere of either liquid or vapor which might affect the accuracy of the test or the performance of the control system. Corrective action, if any, shall be reported with the test results under § 85.075-4.

(2) Care should be exercised, in the application of any pressure tests, neither to purge nor load the evaporative emission control system.

(c) Prepare fuel tank for recording the temperature of the prescribed test fuel at its approximate midvolume.

(d) Provide additional fittings and adapters, as required, to accommodate a fuel drain at the lowest point possible in the tank as installed on the vehicle.

§ 85.075-12 Vehicle preconditioning (fuel evaporative emissions).

Vehicles to be tested for compliance with the fuel evaporative emissions standard of this subpart shall be preconditioned as follows:

(a) The test vehicle shall be operated under the conditions prescribed for mileage accumulation, § 85.075-7, for 1 hour immediately prior to the operations prescribed below.

(b) The fuel tank shall be drained and specified test fuel (§ 85.075-10(a)) added. The evaporative emission control system or device shall not be abnormally purged or loaded as a result of draining or fueling the tank.

(c) The test vehicle shall be placed on the dynamometer and operated over a simulated trip, according to the applicable requirements and procedures of §§ 85.075-14 through 85.075-19 except that the engine need not be cold when starting the run on the dynamometer and only a single trip of 7.5 miles shall be run. During the run the ambient temperature shall be between 68° F. and 86° F.

(d) The engine and cooling fan shall be stopped upon completion of the dynamometer operation and the vehicle permitted to soak either on or off the dynamometer stand at an ambient temperature between 76° F. and 86° F. for a period of not less than 1 hour prior to the soak period prescribed in § 85.075-13(a)(1).

§ 85.075-13 Evaporative emission collection procedure.

The standard test procedure consists of three parts described below which shall be performed in sequence and without any interruption in the test conditions prescribed.

(a) *Diurnal breathing loss test.* (1) The test vehicle shall be allowed to "soak" in an area where the ambient temperature is maintained between 60° F. and 86° F. for a period of not less than 10 hours. (The vehicle preparation requirements of § 85.075–11 may be performed during this period.) It shall then be transferred to a soak area where the ambient temperature is maintained between 76° F. and 86° F. Upon admittance to the 76° F.–86° F. soak area, the prescribed fuel tank thermocouple shall be connected to the recorder and the fuel and ambient temperatures recorded at a chart speed of approximately 12 inches per hour (or equivalent record).

(2) The fuel tank of the prepared test vehicle, preconditioned according to § 85.075–12, shall be drained and recharged with the specified test fuel, § 85.075–10(a), to the prescribed "tank fuel volume," defined in § 85.002. The temperature of the fuel following the charge to the tank shall be 60° F.±2° F. Care should be exercised against abnormal loading of the evaporative emission control system or device as a result of fueling the tank.

(3) Immediately following the fuel charge to the tank, the exhaust pipe(s) and inlet pipe to the air cleaner shall be plugged and the prescribed vapor collection systems installed on all fuel system external vents. Multiple vents may be connected to a single collection trap provided that, where there is more than one external vent on a fuel system distinguishing between carburetor and tank vapors, separate collection systems shall be employed to trap the vapors from the separate sources. Every precaution shall be taken to minimize the lengths of the collection tubing employed and to avoid sharp bends across the entire system.

(4) Artificial means shall be employed to heat the fuel in the tank to 84° F. ±2° F. The prescribed temperature of the fuel shall be achieved over a period of 60 minutes±10 minutes using a constant rate of heat input. After a minimum of 1 hour, following admittance to the 76° F.–86° F. soak area, the vehicle shall be moved onto the dynamometer stand for the subsequent part of the test. The fuel tank thermocouple may be temporarily disconnected to permit moving the test vehicle. Plugs shall be removed from the exhaust pipe(s) and inlet pipe to the air cleaner.

(b) *Running loss test.* (1) The vehicle shall be placed on the dynamometer and the fuel tank thermocouple reconnected. The fuel temperature and the ambient air temperature shall be recorded at a chart speed of approximately 12 inches per hour (or equivalent record).

(2) Where an external vent is located such that any "running loss" emissions would be inducted into the engine, the vapor loss measurement system shall be temporarily disconnected from that vent and clamped. Vapor losses from this vent need not be measured during this part of the test.

(3) The vehicle shall be operated on the dynamometer according to the requirements and procedures of §§ 85.075–14 through 85.075–24. The engine and fan shall be turned off upon completion of the dynamometer run and the exhaust and air cleaner inlet pipes shall be replugged.

(4) Vapor losses need not be measured during the 10-minute soak or 505-second "hot" start test. Any vapor loss collection system used during the cold start shall be temporarily disconnected and clamped. At the end of the hot start test, the vapor collection systems shall be reconnected for the following phase.

(c) *Hot soak test.* Upon completion of the dynamometer run, the test vehicle shall be permitted to soak with hood down for a period of 1 hour at an ambient temperature between 76° F. and 86° F. This operation completes the test. The traps are disconnected and weighed according to § 85.075–21.

§ 85.075–14 Dynamometer driving schedule.

(a) The dynamometer driving schedule to be followed consists of a nonrepetitive series of idle, acceleration, cruise, and deceleration modes of various time sequences and rates. The driving schedule is defined by a smooth transition through the speed vs. time relationships listed in Appendix I. The time sequence begins upon starting the vehicle according to the startup procedure described in § 85.075–19.

(b) A speed tolerance of ±2 m.p.h. and a time tolerance of ±1 second (or an algebraic combination of the two) from either the speed-time relationship prescribed in Appendix I or as printed on a driver's aid chart approved by the Administrator are acceptable. Speed tolerances greater than 2 m.p.h. (such as occur when shifting manual transmission vehicles) are acceptable provided they occur for less than 2 seconds on any one occasion. Speeds lower than those prescribed may be acceptable provided that the vehicle is operated at maximum available power during such occurrences. Further, speed deviations from those prescribed due to stalling are acceptable provided the provisions of § 85.075–19(f) are adhered to.

§ 85.075–15 Dynamometer procedure.

(a) The dynamometer run consists of two tests, a "cold" start test after a minimum 12-hour soak according to the provisions of §§ 85.075–12 and 85.075–13 and a "hot" start test with a 10-minute soak between the two tests. Engine startup, operation over the driving schedule, and engine shutdown make a complete cold start test. Engine startup and operation over the first 505 seconds of the driving schedule complete the hot start test. The exhaust emissions are diluted with air to a constant volume and a portion is sampled continuously during each test. The composite samples collected in bags are analyzed for hydrocarbons, carbon monoxide, carbon dioxide, and oxides of nitrogen. A parallel sample of the dilution air is similarly analyzed for hydrocarbon, carbon monoxide, and oxides of nitrogen.

(b) During dynamometer operation, a fixed speed cooling fan shall be positioned so as to direct cooling air to the vehicle in an appropriate manner with the engine compartment cover open. The fan capacity shall normally not exceed 5,300 c.f.m. If, however, the manufacturer can show that during field operation the vehicle receives additional cooling, the fan capacity may be increased or additional fans used if approved in advance by the Administrator. In the case of vehicles with front engine compartments, the fan(s) shall be squarely positioned between 8 and 12 inches in front of the cooling air inlets (grill). In the case of vehicles with rear engine compartments (or if special designs make the above impractical), the cooling fan(s) shall be placed in a position to provide sufficient air to maintain engine cooling.

(c) The vehicle shall be nearly level when tested in order to prevent abnormal fuel distribution.

(d) Flywheels, electrical or other means of simulating inertia as shown in the following table shall be used. If the equivalent inertia specified is not available on the dynamometer being used, the next higher equivalent inertia (not to exceed 250 lbs.) available shall be used.

Loaded vehicle weight, pounds	Equivalent inertia weight, pounds	Road load power @ 50 m.p.h., horsepower
Up to 1,125	1,000	5.9
1,126 to 1,375	1,000	6.5
1,376 to 1,625	1,500	7.1
1,626 to 1,875	1,750	7.7
1,876 to 2,125	2,000	8.3
2,126 to 2,375	2,250	8.8
2,376 to 2,625	2,500	9.4
2,626 to 2,875	2,750	9.9
2,876 to 3,250	3,000	10.3
3,251 to 3,750	3,500	11.2
3,751 to 4,250	4,000	12.0
4,251 to 4,750	4,500	12.7
4,751 to 5,250	5,000	13.4
5,251 to 5,750	5,500	13.9
5,751 to above	5,500	14.4

(e) Power absorption unit adjustment.

(1) The power absorption unit shall be adjusted to reproduce road load power at 50 m.p.h. true speed. The indicated road load power setting shall take into account the dynamometer friction. The relationship between road load (absorbed) power and indicated road load power for a particular dynamometer shall be determined by the procedure outlined in Appendix II or other suitable means.

(2) The road load power listed in the table above shall be used or the vehicle manufacturer may determine the road load power by the following procedure and request its use:

(i) Measuring the absolute manifold pressure of a representative vehicle, of the same equivalent inertia weight class, when operated on a level road under balanced wind conditions at a true speed of 50 m.p.h., and

(ii) Noting the dynamometer indicated road load horsepower setting required to reproduce that manifold pressure when the same vehicle is operated on the dynamometer at a true speed of 50 m.p.h. The tests on the road and on the dynamometer shall be performed with the same vehicle ambient absolute pressure (usually barometric), i.e. within ±5 mm. Hg.

(iii) The road load power shall be determined according to the procedure outlined in Appendix II and adjusted according to the following if applicable.

(3) Where it is expected that more than 33 percent of the vehicles in an engine family will be equipped with air conditioning, the road load power listed above or as determined in paragraph 2 of this subsection shall be increased by 10 percent for testing all test vehicles representing such engine family.

(f) The vehicle speed (m.p.h.) as measured from the dynamometer rolls shall be used for all conditions. A speed vs. time recording, as evidence of dynamometer test validity, shall be supplied on request of the Administrator.

(g) Practice runs over the prescribed driving schedule may be performed to find the minimum throttle action to maintain the proper speed-time relationship.

NOTE: When using two-roll dynamometers a truer speed-time trace may be obtained by minimizing the rocking of the vehicle in the rolls. The rocking of the vehicle changes the tire rolling radius on each roll. The rocking may be minimized by restraining the vehicle horizontally (or nearly so) by using a cable and winch.

(h) The drive wheel tires may be inflated up to 45 p.s.i.g. in order to prevent tire damage. The drive wheel tire pressure shall be reported with the test results.

(i) If the dynamometer has not been operated during the 2-hour period immediately preceding the test it shall be warmed up for 15 minutes by operating it at 30 m.p.h. using a nontest vehicle.

§ 85.075–16 Three-speed manual transmissions.

(a) All test conditions except as noted shall be run in highest gear.

(b) Cars equipped with free wheeling or overdrive units shall be tested with this unit (free wheeling or overdrive) locked out of operation.

(c) Idle shall be run with transmission in gear and with clutch disengaged (except first idle; see § 85.075–19).

(d) The vehicle shall be driven with minimum throttle movement to maintain the desired speed.

(e) Acceleration modes shall be driven smoothly with the shift speeds as recommended by the manufacturer. If the manufacturer does not recommend shift speeds, the vehicle shall be shifted from first to second gear at 15 m.p.h. and from second to third gear at 25 m.p.h. The operator shall release the accelerator pedal during the shift, and accomplish the shift with minimum closed throttle time. If the vehicle cannot accelerate at the specified rates, the vehicle shall be accelerated at WOT until the vehicle speed reaches the speed at which it should be at that time during the test.

(f) The deceleration modes shall be run with clutch engaged and without shifting gears from the previous mode, using brakes or throttle as necessary to maintain the desired speed. For those modes which decelerate to zero, the clutch shall be depressed when the speed drops below 15 m.p.h., when engine roughness is evident, or when engine stalling is imminent.

(g) Downshifting is allowed at the beginning of or during a power mode if recommended by the manufacturer or if the engine obviously is lugging.

§ 85.075–17 Four-speed and five-speed manual transmissions.

(a) Use the same procedure as for three-speed manual transmissions for shifting from first to second gear and from second to third gear. If the manufacturer does not recommend shift speeds, the vehicle shall be shifted from third to fourth gear at 40 m.p.h. Fifth gear may be used at the manufacturer's option.

(b) If transmission ratio in first gear exceeds 5:1, follow the procedure for three- or four-speed manual transmission vehicles as if the first gear did not exist.

§ 85.075–18 Automatic transmissions.

(a) All test conditions shall be run with the transmission in "Drive" (highest gear). Automatic stick-shift transmissions may be shifted as manual transmissions at the option of the manufacturer.

(b) Idle modes shall be run with the transmission in "Drive" and the wheels braked (except first idle; see § 85.075–19).

(c) The vehicle shall be driven with minimum throttle movement to maintain the desired speed.

(d) Acceleration modes shall be driven smoothly allowing the transmission to shift automatically through the normal sequence of gears. If the vehicle cannot accelerate at the specified rates, the vehicle shall be accelerated at WOT until the vehicle speed reaches the speed at which it should be at that time during the driving schedule.

(e) The deceleration modes shall be run in gear using brakes or throttle as necessary to maintain the desired speed.

§ 85.075–19 Engine starting and restarting.

(a) The engine shall be started according to the manufacturer's recommended starting procedures. The initial 20-second-idle period shall begin when the engine starts.

(b) Choke operation:

(1) Vehicles equipped with automatic chokes shall be operated according to the manufacturer's operating or owner's manual including choke setting and "kick-down" from cold fast idle. If choke "kick-down" time is not specified, it shall be performed 13 seconds after the engine starts. The transmission shall be placed in gear 15 seconds after the engine is started. If necessary, braking may be employed to keep the drive wheels from turning.

(2) Vehicles equipped with manual chokes shall be operated according to the instructions which will be included in the manufacturer's operating or owner's manual. If not specified, the choke shall be operated to maintain engine idle at 1,100±50 r.p.m. during the initial idle period and used where necessary during the remainder of the test to keep the engine running.

(c) The operator may use more choke, more throttle, etc., where necessary to keep the engine running.

(d) If the manufacturer's operating or owner's manual does not specify a warm engine starting procedure, the engine (automatic and manual choke engines) shall be started by depressing the acceleration pedal about half way and cranking the engine until it starts.

(e) If the vehicle does not start after 10 seconds of cranking, cranking shall cease and the reason for failure to start determined. The revolution counter on the constant volume sampler (see § 85.075–24, Dynamometer test runs) shall be turned off and the sample solenoid valves placed in the "dump" position during this diagnostic period. In addition, either the positive displacement pump should be turned off or the exhaust tube disconnected from the tailpipe during the diagnostic period. If failure to start is an operational error, the vehicle shall be rescheduled for testing from a cold start. If failure to start is caused by vehicle malfunction, corrective action of less than 30 minutes duration may be taken and the test continued. The sampling system shall be reactivated at the same time cranking is started. When the engine starts, the driving schedule timing sequence shall begin. If failure to start is caused by vehicle malfunction and the vehicle cannot be started, the test shall be voided, the vehicle removed from the dynamometer, corrective action taken, and the vehicle rescheduled for test. The reason for the malfunction (if determined) and the corrective action taken shall be reported.

(e) If the engine "false starts", the operator shall repeat the recommended starting procedure (such as resetting the choke, etc.).

(f) Stalling:

(1) If the engine stalls during an idle period, the engine shall be restarted immediately and the test continued. If the engine cannot be started soon enough to allow the vehicle to follow the next acceleration as prescribed, the driving schedule indicator shall be stopped. When the vehicle restarts the driving schedule indicator shall be reactivated.

(2) If the engine stalls during some operating mode other than idle, the driving schedule indicator shall be stopped, the vehicle restarted, accelerated to the speed required at that point in the driving schedule and the test continued.

(3) If the vehicle will not restart within 1 minute, the test shall be voided, the vehicle removed from the dynamometer, corrective action taken, and the vehicle rescheduled for test. The reason for the malfunction (if determined) and the corrective action taken shall be reported.

§ 85.075–20 Sampling and analytical system (exhaust emissions).

(a) *Schematic drawings.* The following figures (Figs. A75–1 and A75–2) are schematic drawings of the exhaust gas sampling and analytical systems which will be used for testing under the regulations in this part. Additional components such as instruments, valves, solenoids, pumps, and switches may be used to provide additional information and coordinate the functions of the component systems.

(b) *Component description (exhaust gas sampling system)*. The following components will be used in the exhaust gas sampling system for testing under the regulations in this part. See Figure A75-1. Other types of constant volume samplers may be used if shown to yield equivalent results.

(1) A dilution air filter assembly consisting of a particulate (paper) filter to remove solid matter from the dilution air and thus increase the life of the charcoal filter; a charcoal filter to reduce and stabilize the background hydrocarbon level; and a second particulate filter to remove charcoal particles from the air stream. The filters shall be of sufficient capacity and the duct which carries the dilution air to the point where the exhaust gas is added shall be of sufficient size so that the pressure at the mixing point is less than 1 inch of water pressure below ambient when the constant volume sampler is operating at its maximum flow rate.

(2) A flexible, leak-tight connector and tube to the vehicle tailpipe. The flexible tubing shall be sized and connected in such a manner that the static pressure variations in the vehicle tailpipe(s) remain within ±1 inch of water of the static pressure variations measured during a dynamometer driving cycle with no connections to the tailpipe(s).

(3) A heating system to preheat the heat exchanger to within ±10° F. of its operating temperature before the test begins.

(4) A heat exchanger capable of limiting the gas mixture temperature variation during the entire test to ±10° F. as measured at a point immediately ahead of the positive displacement pump.

(5) A positive displacement pump to pump the dilute exhaust mixture. The pump capacity (300 to 350 c.f.m. is sufficient for testing most vehicles) shall be large enough to virtually eliminate water condensation in the system. See Appendix III for flow calibration techniques.

(6) Temperature sensor (T1) with an accuracy of ±2° F. to allow continuous recording of the temperature of the dilute exhaust mixture entering the positive displacement pump. (See § 85.075-22)(1).)

(7) Gauge (G1) with an accuracy of ±3 mm. Hg to measure the pressure depression of the dilute exhaust mixture entering the positive displacement pump, relative to atmospheric pressure.

(8) Gauge (G2) with an accuracy of ±3 mm. Hg to measure the pressure increase across the positive displacement pump.

(9) Sample probes (S1 and S2) pointed upstream to collect samples from the dilution air stream and the dilute exhaust mixture. Additional sample probes may be used, for example, to obtain continuous concentration traces of the dilute exhaust stream. In such case the sample flow rate, in standard cubic feet per test phase, must be added to the calculated dilute exhaust volume. The position of the sample probe in Figure A75-1 is pictorial only.

(10) Filters (F1 and F2) to remove particulate matter from dilution air and dilute exhaust samples.

(11) Pumps (P1 and P2) to pump the dilution air and dilute exhaust into their respective sample collection bags.

(12) Flow control valves (N1 and N2) to regulate flows to sample collection bags, at constant flow rates. The minimum sample flow rate shall be 10 c.f.h.

(13) Flowmeters (FL1 and FL2) to insure, by visual observation, that constant flow rates are maintained throughout the test.

(14) Three-way solenoid valves (V1, V2, V3, and V4) to direct sample streams to either their respective bags or overboard.

(15) Quick-connect, leak-tight fittings (C1, C2, C3, and C4) with automatic shutoff on bag side to attach sample bags to sample system.

(16) Sample collection bags for dilution air and exhaust samples of sufficient capacity so as not to impede sample flow.

(17) Revolution counters to count the revolutions of the positive displacement pump while each test phase is in progress and samples are being collected.

(c) *Component description (exhaust gas analytical system)*. The following components will be used in the exhaust gas analytical system for testing under the regulations in this part. The analytical system provides for the determination of hydrocarbon concentrations by flame ionization detector (FID) analysis, the determination of carbon monoxide and carbon dioxide concentrations by nondispersive infrared (NDIR) analysis and the determination of oxides of nitrogen concentrations by chemiluminescence (CL) analysis in dilute exhaust samples. The chemiluminescence method of analysis requires that the nitrogen dioxide present in the sample be converted to nitric oxide before analysis. See Appendix V. Other types of analyzers may be used if shown to yield equivalent results and if approved in advance by the Administrator. See Figure A75-2.

(1) Quick-connect leak-tight fitting (C4) to attach sample bags to analytical system.

(2) Filter (F3) to remove any residual particulate matter from the collected sample.

(3) Pump (P3) to transfer samples from the sample bags to the analyzers.

(4) Selector valves (V4, V5, V6, V7, and V8) for directing samples, span gases or zeroing gases to the analyzers.

(5) Flow control valves (N3, N4, N5, N6, N7, N8, N9, N10, N11, N12, and N13) to regulate the gas flow rates.

(6) Flowmeters (FL3, FL4, and FL5) to indicate gas flow rates.

(7) Manifold (M1) to collect the expelled gases from the analyzers.

(8) Pump (P4) to transfer expelled gases from the collection manifold to a vent external to the test room (optional).

(9) Analyzers to determine hydrocarbon, carbon monoxide, carbon dioxide and oxides of nitrogen concentrations.

(10) An oxide of nitrogen converter to convert any NO_2 present in the samples to NO before analysis.

(11) Selector valves (V9 and V10) to allow the sample, span, calibrating or zeroing gases to bypass the converter.

(12) Water trap (T1) to partially remove water and a valve (V11) to allow the trap to be drained.

(13) Sample conditioning columns to remove remainder of water (WR1 and WR2 containing indicating $CaSO_4$, or indicating silica gel) and carbon dioxide (CDR1 and CDR2 containing ascarite) from the CO analysis stream.

(14) Selector valves (V12 and V13) to permit switching from exhausted absorbing columns to fresh columns.

(15) Water bubbler (W1) to allow saturation of the CO_2 span gas to check efficiency of absorbing columns.

(16) Recorders (R1, R2, R3, and R4) or digital printers to provide permanent records of calibration, spanning and sample measurements; or in those facilities where computerized data acquisition systems are incorporated, the computer facility printout may be used.

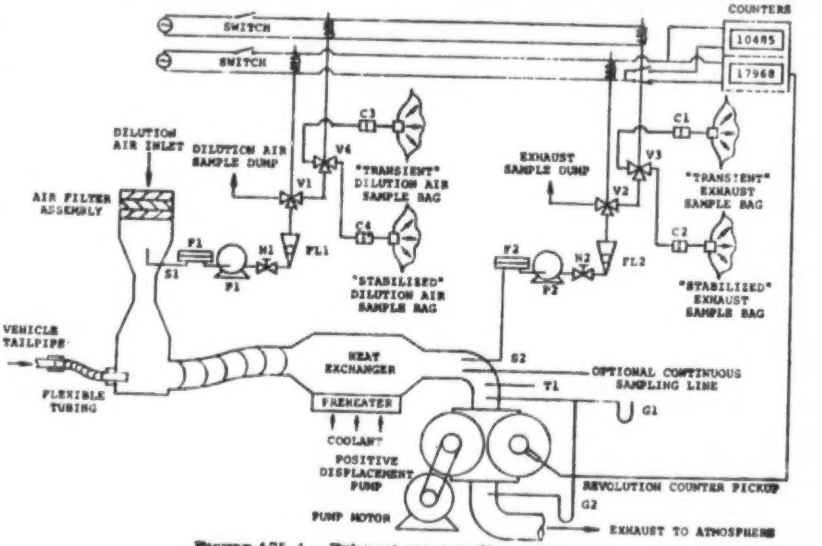

FIGURE A75-1.—Exhaust gas sampling system.

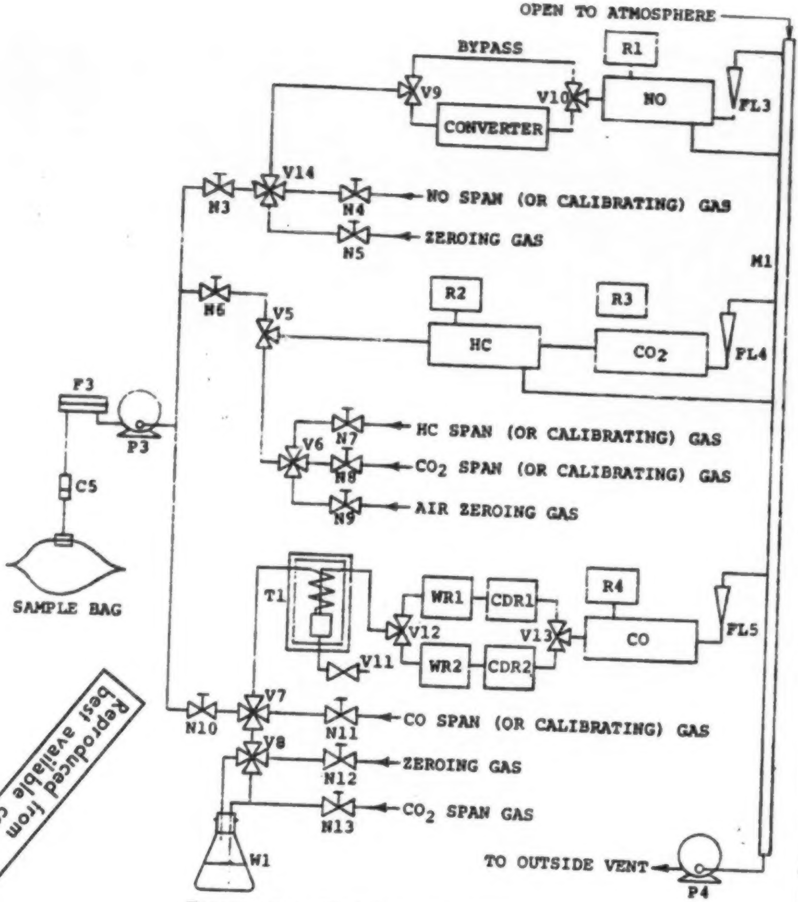
OPEN TO ATMOSPHERE
BYPASS
R1
V9
V10
NO
FL3
CONVERTER
V14
N3
N4
NO SPAN (OR CALIBRATING) GAS
N5
ZEROING GAS
M1
N6
V5
R2
R3
HC
CO2
FL4
F3
P3
HC SPAN (OR CALIBRATING) GAS
V6
N7
N8
CO2 SPAN (OR CALIBRATING) GAS
N9
AIR ZEROING GAS
C5
R4
T1
WR1
CDR1
V12
V13
CO
FL5
SAMPLE BAG
V11
WR2
CDR2
N10
V7
N11
CO SPAN (OR CALIBRATING) GAS
V8
N12
ZEROING GAS
N13
CO2 SPAN GAS
W1
TO OUTSIDE VENT
P4

FIGURE A75-2.—Exhaust gas analytical system.

§ 85.075-21 Sampling and analytical system (fuel evaporative emissions).

(a) *Schematic drawing.* (1) The following figures (Figures A75-3, A75-4, and A75-5) are flow diagrams of typical evaporative loss collection applications.

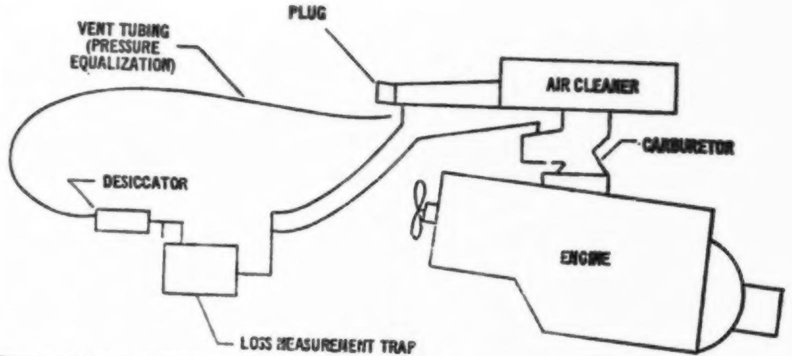
VENT TUBING (PRESSURE EQUALIZATION)
PLUG
AIR CLEANER
CARBURETOR
DESICCATOR
ENGINE
LOSS MEASUREMENT TRAP

FIGURE A75-3.—Typical carburetor evaporative loss collection arrangement (schematic).

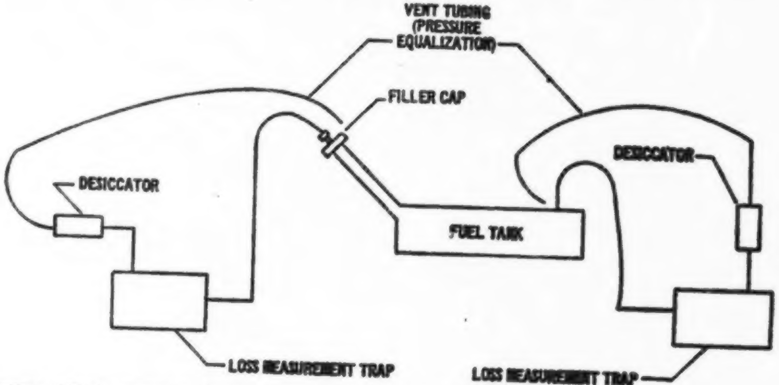
VENT TUBING (PRESSURE EQUALIZATION)
FILLER CAP
DESICCATOR
DESICCATOR
FUEL TANK
LOSS MEASUREMENT TRAP
LOSS MEASUREMENT TRAP

FIGURE A75-4.—Typical fuel tank evaporative loss collection arrangement (schematic).

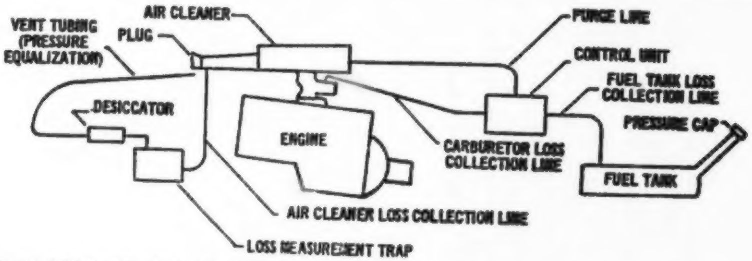
AIR CLEANER
VENT TUBING (PRESSURE EQUALIZATION)
PLUG
PURGE LINE
CONTROL UNIT
FUEL TANK LOSS COLLECTION LINE
PRESSURE CAP
DESICCATOR
ENGINE
CARBURETOR LOSS COLLECTION LINE
FUEL TANK
AIR CLEANER LOSS COLLECTION LINE
LOSS MEASUREMENT TRAP

FIGURE A75-5.—Typical fuel evaporative loss collection arrangement for vehicle equipped with evaporative emission control system (schematic).

Reproduced from best available copy.

(2) Figure A75-3 represents an arrangement for collecting losses which emanate from the carburetor. Figure A75-4 depicts the means for separately collecting the vapors which emanate from the fuel tank vent line and filler cap. Figure A75-5 shows an arrangement for collecting the losses from a closed fuel system, vented to the atmosphere solely through the air cleaner, as might be the case with certain fuel evaporative emission control devices.

(3) Schematic drawings of arrangements to be employed shall be submitted in accordance with § 85.075-2(b)(3).

(b) *Collection equipment.* The following equipment shall be used for this collection of fuel evaporative emissions. (Item quantities are determined by individual test needs.)

(1) *Activated carbon trap.* See Figure A75-6 for specifications of one design; other configurations may be used: *Provided,* That they give demonstrably equivalent results.

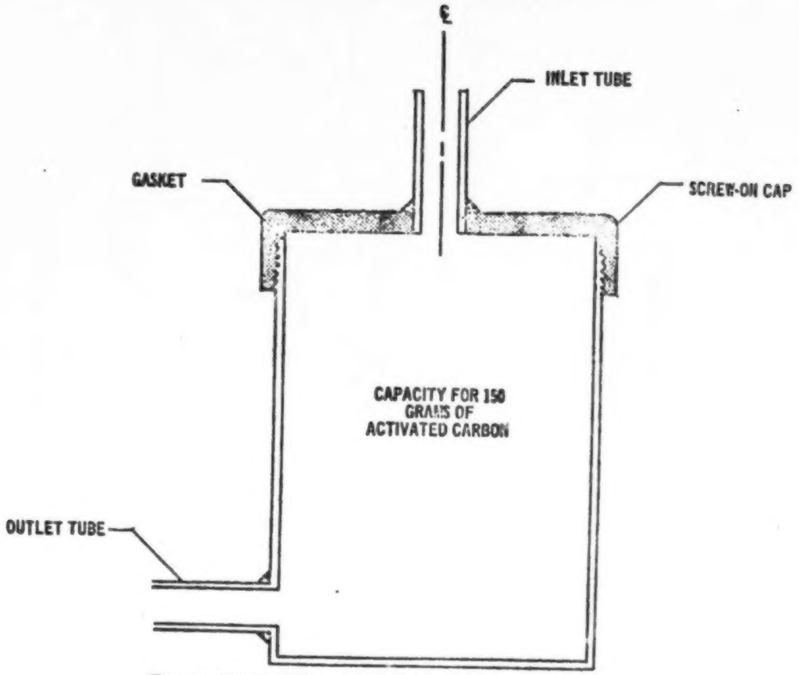

FIGURE A75-6.—Typical activated carbon trap (schematic).

(i) Canister—300±25 ml., cylindrical container having a length to diameter ratio of 1.4±0.1. An inlet tube, 5/16 inch ID and 1 inch long is sealed into the top of the canister, at its geometric center. A similar outlet tube is sealed into the wall 1/4 inch from the bottom of the canister. The canister is designed to withstand an air pressure of 2 p.s.i., when sealed, without evidence of leaking when immersed in water for 30 seconds.

(ii) Activated carbon—meeting the following specifications:

Surface area, min. (N_2 BET method).[1]	1,000 square meters per gram.
Adsorption capacity, min. (carbon tetrachloride)	60 percent, by weight.
Volatile material including adsorbed water vapor.	None.

Screen analysis size:	Percent
Less than 1.4 mm	0
1.7–2.4 mm	90–100
More than 3.0 mm	0

The activated carbon trap is prepared for the test by attaching clamped sections of vinyl tubing to the inlet and outlet tubes of the canister. The canister is then filled with 150±10 gm. hot activated carbon which had previously been oven-dried for 3 hours at 300° F. Loss of carbon through the inlet and outlet tubes is prevented through the use of wire screens of 0.7 mm. mesh or wads of loosely packed glass wool. The canister is closed immediately after filling and the carbon is allowed to cool while the trap is vented through a drying tube via the unclamped outlet arm.

(iii) The trap is sealed and weighed after cooling and the weight, to the nearest 0.1 gram, is inscribed on the canister body. Within 12 hours of the scheduled test, the weight of the trap is checked and if it has changed by more than 0.5 gm., it is redried to constant weight. This redrying operation is performed by passing dry nitrogen, heated to 275° F., through the trap, via the inlet tube, at a rate of 1 liter per minute until checks made at 30-minute intervals do not vary by more than 0.1 percent of the gross weight. The trap and its contents are allowed to cool to room temperature, while vented through a drying tube via the outlet arm, before use.

(2) *Auxiliary collection equipment.* (i) Drying tube—transparent, tubular body 3/4 inch ID, 6 inches long, with serrated tips and removable caps.

(ii) Desiccant—indicating variety, 8 mesh. The drying tube is attached to the outlet tube of the collection traps to prevent ambient moisture from entering the trap. It is prepared by filling the empty drying tube with fresh desiccant using loose wad of glass wool to hold the desiccant in place. The desiccant is renewed when three-quarters spent, as indicated by color change.

(iii) Collection tubing—stainless steel or aluminum, 5/16 inch ID, for connecting the collection traps to the fuel system vents.

(iv) Polyvinyl chloride (vinyl) tubing—flexible tubing, 5/16 inch ID, for sealing butt-to-butt joints.

(v) Laboratory tubing—air tight flexible tubing 5/16 inch ID, attached to the outlet end of the drying tubes to equalize collection system pressure.

(vi) Clamps—hosecock, openside, for pinching off flexible tubing.

(c) *Weighing equipment.* The balance and weights used shall be capable of determining the net weight of the activated carbon trap within an accuracy of ±75 mg.

(d) *Temperature measuring equipment.* (1) Temperature recorder—multichannel, variable speed, potentiometric, or substantially equivalent, recorder with a temperature range of 50° F. to 100° F. and capable of either simultaneous or sequential recording of the ambient air and fuel temperatures within an accuracy of ±1° F.

(2) Fuel tank thermocouples—iron-constantan (type J) construction.

(3) Other types of temperature sensing systems may be provided by the manufacturer if they record the information specified in subparagraph (1) of this paragraph with the required accuracy and if they are self-contained. Type J thermocouples are required for compatibility with recording instruments used in Federal certification facilities.

(e) *Assembly and use of the activated carbon vapor collection system.* (1) The prepared activated carbon trap, dried to constant weight, cooled to the ambient temperature and sealed with clamped sections of vinyl tubing is carefully weighed to the nearest 20 milligrams and the weight recorded as the "tare weight."

(2) A drying tube is attached to the outlet tube and the clamp released, but not removed. A length of flexible tubing, for pressure equalization, is connected to the other end of the drying tube.

(3) The inlet tube of the adsorption trap and external vent(s) of the fuel system will be connected by minimal lengths of stainless steel or aluminum tubing and short sections of vinyl tub-

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[1] Brunauer, Emmett & Teller: Journal of the American Chemical Society, Vol. 60, p. 309, 1938.

ing. Butt-to-butt joints shall be made wherever possible and precautions taken against sharp bends in the connection lines, including any manifold systems employed to connect multiple vents to a single trap.

(4) The clamp on the inlet tube of the trap shall be released but not removed. Care shall be exercised to prevent heating the vapor collection trap by radiant or conductive heat from the engine.

(5) Upon completion of the collection sequence, the vinyl tubing sections on each arm of the collection trap shall be clamped tight and the collection system dismantled.

(6) The sealed vapor collection trap shall be weighed carefully to the nearest 20 milligrams. This constitutes the "gross weight," which is appropriately recorded. The difference between the "gross weight" and "tare weight" represents the "net weight" for purposes of calculating the fuel vapor losses.

§ 85.075–22 Information to be recorded.

The following information shall be recorded with respect to each test:

(a) Test number.

(b) System or device tested (brief description).

(c) Date and time of day for each part of the test schedule.

(d) Instrument operator.

(e) Driver or operator.

(f) Vehicle: Make—Vehicle Identification number—Model year—Transmission type—Odometer reading—Engine displacement—Engine family—Idle r.p.m.—Nominal fuel tank capacity and location on vehicle—Number of carburetors—Number of carburetor barrels—Inertia loading—Actual road load HP. at 50 m.p.h. and drive wheel tire pressure.

(g) Dynamometer serial number and indicated road load power absorption at 50 m.p.h.

(h) All pertinent instrument information such as tuning—gain—serial numbers—detector numbers—range.

(i) Recorder charts: Identify zero, span, exhaust gas, and dilution air sample traces.

(j) Barometric pressure, ambient temperature and humidity and the temperature of the air in front (from 6 to 12 inches from the grill) of the radiator during the test.

(k) Fuel temperatures, as prescribed.

(l) The temperature and pressure of the mixture of exhaust and dilution air entering the positive displacement pump and the pressure increases across the pump. The temperature of the mixture shall be recorded continuously or digitally at a rate often enough to determine temperature variations, or it may be controlled to ±5° F. of the set point of the temperature control system. In the last case only the set point need be recorded.

(m) The number of revolutions of the positive displacement pump accumulated while the test is in progress and exhaust flow samples are being collected.

(n) The humidity of the dilution air.

§ 85.075–23 Analytical system calibration and sample handling.

(a) Calibrate the analytical assembly at least once every 30 days. Use the same flow rate as when analyzing samples.

(1) Adjust analyzers to optimize performance.

(2) Zero the hydrocarbon analyzer with zero grade air and the carbon monoxide, carbon dioxide, and oxides of nitrogen analyzers with zero grade nitrogen. The allowable zero gas impurity concentrations should not exceed 1 p.p.m. equivalent carbon response, 1 p.p.m. carbon monoxide, 300 p.p.m. (0.03 mole percent) carbon dioxide, and 0.1 p.p.m. nitric oxide.

(3) Set the CO and CO_2 analyzer gains to give the desired ranges. Select the desired attenuation scale of the HC analyzer and set the sample capillary flow rate, by adjusting the back pressure regulator, to give the desired range. Select the desired scale of the NO_x analyzer and adjust the phototube high voltage supply or the amplifier gain to give the desired range.

(4) Calibrate the HC analyzer with propane (air diluent) gases having nominal concentrations equal to 50 and 100 percent of full scale. Calibrate the CO analyzer with carbon monoxide (nitrogen diluent) gases and the CO_2 analyzer with carbon dioxide (nitrogen diluent) gases having nominal concentrations equal to 10, 25, 40, 50, 60, 70, 85, and 100 percent of full scale. Calibrate the NO_x analyzer with nitric oxide (nitrogen diluent) gases having nominal concentrations equal to 50 and 100 percent of full scale. The actual concentrations should be known to within ±2 percent of the true values.

(5) Compare values obtained on the CO and CO_2 analyzers with previous calibration curves. Any significant change reflects some problem in the system. Locate and correct problem, and recalibrate. Use best judgment in selecting curves for data reduction.

(6) Check the NO_x to NO converter efficiency by the following procedure:

(i) Fill a new (not previously used to collect exhaust gas samples) sample bag with air (or oxygen) and NO span gas in proportions which result in a mix in the operating range of the analyzer. Provide enough oxygen for substantial conversion of NO to NO_2.

(ii) Knead bag and immediately connect the bag to the sample inlet and alternately measure the NO and NO_x concentration at 1-minute intervals by alternately passing the sample through the converter and the bypass (close valves N6 and N10 to minimize pump down rate of bag). After several minutes of operation, the recording of NO and NO_x will resemble Figure A75-7 if the converter is efficient. Even though the amount of NO_2 increases with time, the total NO_x ($NO+NO_2$) remains constant. A decay of NO_x with time indicates the converter is not essentially 100 percent efficient and the cause should be determined before the instrument is used.

(iii) The converter efficiency should be checked at least once weekly and preferably once daily.

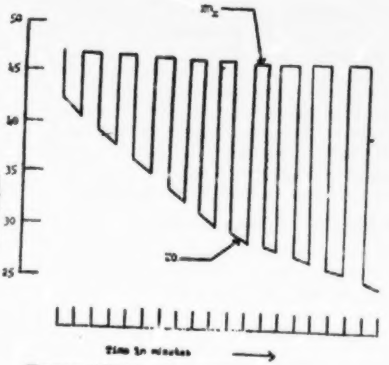


FIGURE A75–7.—Converter efficiency check response.

(7) Check the efficiency of the sample conditioning system by the following procedure:

(i) Zero and span the CO instrument on its most sensitive scale.

(ii) Recheck zero.

(iii) Bubble CO_2 span gas through water and then through the sample conditioning system into the CO instrument. If the CO instrument shows no response to the wet CO_2 the columns are in good condition.

(iv) If the CO instrument responds to wet CO_2, replace columns as necessary to bring response back to zero.

(v) The conditioning system efficiency should be checked daily.

(b) HC, CO, CO_2, and NO_x measurements: Allow a minimum of 20 minutes warmup for the HC analyzer and 2 hours for the CO, CO_2, and NO_x analyzers. (Power is normally left on infrared and chemiluminescence analyzers; but when not in use, the chopper motors of the infrared analyzers are turned off and the phototube high voltage supply of the chemiluminescence analyzer is placed in the standby position.) The following sequence of operations should be performed in conjunction with each series of measurements:

(1) Zero the analyzers. Obtain a stable zero on each amplifier meter and recorder. Recheck after tests.

(2) Introduce span gases and set the CO and CO_2 analyzer gains, the HC analyzer sample capillary flow rate and the NO_x analyzer high voltage supply or amplifier gain to match the calibration curves. In order to avoid corrections, span and calibrate at the same flow rates used to analyze the test samples. Span gases should have concentrations equal to approximately 80 percent of full scale. If gain has shifted significantly on the CO or CO_2 analyzers, check tuning. If necessary, check calibration. Recheck after test. Show actual concentrations on chart.

(3) Check zeroes; repeat the procedure in subparagraphs (1) and (2) of this paragraph if required.

(4) Check flow rates and pressures.

(5) Measure HC, CO, CO_2, and NO_x concentrations of samples. Care should be exercised to prevent moisture from condensing in the sample collection bag.

(6) Check zero and span points.

(c) For the purposes of this section, the term "zero grade air" includes artificial "air" consisting of a blend of nitrogen and oxygen with oxygen concentrations between 18 and 21 mole percent.

§ 85.075–24 Dynamometer test runs.

(a) The vehicle shall be allowed to stand with the engine turned off for a period of not less than 12 hours before the cold start exhaust emission test, at an ambient temperature as specified in §§ 85.075–12 and 85.075–13. The vehicle shall be stored prior to the emission tests in such a manner that precipitation (e.g. rain or dew) does not occur on the vehicle. The complete dynamometer test consists of a cold start drive of 7.5 miles and simulates a hot start drive of 7.5 miles. The vehicle is allowed to stand on the dynamometer during the 10-minute time period between the cold and hot start tests. The cold start test is divided into two periods. The first period, representing the cold start "transient" phase, terminates at the end of the deceleration which is scheduled to occur at 505 seconds of the driving schedule. The second period, representing the "stabilized" phase, consists of the remainder of the driving schedule including engine shutdown. The hot start test similarly consists of two periods. The first period, representing the hot start "transient" phase, terminates at the same point in the driving schedule as the first phase of the cold start test. The second period of the hot start test, "stabilized" phase, is assumed to be identical to the second period of the cold start test. Therefore, the hot start test terminates after the first period (505 seconds) is run. During the tests the ambient temperature shall be between 68° F. and 86° F.

(b) The following steps shall be taken for each test:

(1) Place drive wheels of vehicle on dynamometer without starting engine.

(2) Open the vehicle engine compartment cover and start the cooling fan.

(3) With the sample solenoid valves in the "dump" position connect evacuated sample collection bags to the two dilute exhaust sample connectors and to the two dilution air sample line connectors.

(4) Start the positive displacement pump (if not already on), the sample pumps, and the temperature recorder. (The heat exchanger of the constant volume sampler should be preheated to its operating temperature before the test begins.)

(5) Adjust the sample flow rates to the desired flow rate (minimum of 10 c.f.h.) and set the revolution counters to zero.

(6) Attach the flexible exhaust tube to the vehicle tailpipe(s).

(7) Simultaneously start the revolution counter for the positive displacement pump, position the sample solenoid valves to direct the sample flow into the "transient" exhaust sample bag and the "transient" dilution air sample bag, and start cranking the engine.

(8) Fifteen seconds after the engine starts, place the transmission in gear.

(9) Twenty seconds after the engine starts, begin the initial vehicle acceleration of the driving schedule.

(10) Operate the vehicle according to the dynamometer driving schedule (§ 85.075–14).

(11) At the end of the deceleration which is scheduled to occur at 505 seconds, simultaneously switch the sample flows from the "transient" bags to the "stabilized" bags, switch off revolution counter No. 1 and start counter No. 2. As soon as possible and in no case longer than 20 minutes after the end of this portion of the test disconnect the "transient" exhaust and dilution air sample bags, transfer them to the analytical system and process the samples according to § 85.075–23.

(12) Immediately after the end of the sample period turn off the cooling fan and close the engine compartment cover.

(13) Five seconds after the engine stops running, simultaneously turn off revolution counter No. 2 and position the sample solenoid valves to the "dump" position. As soon as possible and in no case longer than 20 minutes after the end of this portion of the test disconnect the "stabilized" exhaust and dilution air sample bags, transfer them to the analytical system and process the samples according to § 85.075–23.

(14) Immediately after the end of the sample period, disconnect the exhaust tube from the tailpipe(s), turn off the cooling fan and close the engine compartment cover.

(15) Turn off the positive displacement pump.

(16) Repeat the steps in subparagraphs (2) through (10) of this paragraph for the hot start test except only one evacuated sample bag is required for sampling exhaust gas and one for dilution air. The step in subparagraph (7) of this paragraph shall begin between 9 and 11 minutes after the end of the sample period for the cold start test.

(17) At the end of the deceleration which is scheduled to occur at 505 seconds, simultaneously turn off the No. 1 revolution counter and position the sample solenoid valve to the "dump" position. (Engine shutdown is not part of the hot start test sample period.)

(18) As soon as possible and in no case longer than 20 minutes after the end of this portion of the test disconnect the hot start "transient" exhaust and dilution air sample bags, transfer them to the analytical system and process the samples according to § 85.075–23.

(19) Disconnect the exhaust tube from the vehicle tailpipe(s) and remove vehicle from dynamometer.

(20) The positive displacement pump may be turned off, if desired.

§ 85.075–25 Chart reading.

(a) Determine the HC, CO, CO_2 and NO_x concentrations of the dilution air and dilute exhaust sample bags from the instrument deflections or recordings making use of appropriate calibration charts.

(b) Determine the average dilute exhaust mixture temperatures from the temperature recorder trace if a recorder is used.

§ 85.075–26 Calculations (exhaust emissions).

The final reported test results shall be computed by use of the following formulae:

(a) For light duty vehicles:

$$Y_{wm} = (0.43\,Y_{ct} + 0.57\,Y_{ht} + Y_s)/7.5$$

where:

Y_{wm} = Weighted mass emissions of each pollutant, i.e. HC, CO, or NO_x, in grams per vehicle mile.

Y_{ct} = Mass emissions as calculated from the "transient" phase of the cold start test, in grams per test phase.

Y_{ht} = Mass emissions as calculated from the "transient" phase of the hot start test in grams per test phase.

Y_s = Mass emissions as calculated from the "stabilized" phase of the cold start test, in grams per test phase.

(b) The mass of each pollutant for each phase of both the cold start test and the hot start test is determined from the following:

(1) Hydrocarbon Mass:

$$HC_{mass} = V_{mix} \times \text{Density}_{HC} \times \frac{HC_{conc}}{1{,}000{,}000}$$

(2) Oxides of nitrogen Mass:

$$NOx_{mass} = V_{mix} \times \text{Density}_{NO_2} \times \frac{NOx_{conc}}{1{,}000{,}000} \times K_H$$

(3) Carbon monoxide Mass:

$$CO_{mass} = V_{mix} \times \text{Density}_{CO} \times \frac{CO_{conc}}{1{,}000{,}000}$$

(c) Meaning of symbols:

HC_{mass} = Hydrocarbon emissions, in grams per test phase.

Density_{HC} = Density of hydrocarbons in the exhaust gas, assuming an average carbon to hydrogen ratio of 1:1.85, in grams per cubic foot at 68° F. and 760 mm. Hg pressure (16.33 gm./cu. ft).

HC_{conc} = Hydrocarbon concentration of the dilute exhaust sample corrected for background, in p.p.m. carbon equivalent, i.e. equivalent propane × 3.

$$HC_{conc} = HC_e - HC_d(1 - 1/DF)$$

where:

HC_e = Hydrocarbon concentrations of the dilute exhaust sample as measured, in p.p.m. carbon equivalent.

HC_d = Hydrocarbon concentration of the dilution air as measured in p.p.m. carbon equivalent.

NOx_{mass} = Oxides of nitrogen emissions, in grams per test phase.

Density_{NO_2} = Density of oxides of nitrogen in the exhaust gas, assuming they are in the form of nitrogen dioxide, in grams per cubic foot at 68° F. and 760 mm. Hg pressure (54.16 gm./cu. ft.).

NOx_{conc} = Oxides of nitrogen concentration of the dilute exhaust sample corrected for background, in p.p.m.

$$NOx_{conc} = NOx_e - NOx_d(1 - 1/DF)$$

where:

NO_{x_e} = Oxides of nitrogen concentration of the dilute exhaust sample as measured, in p.p.m.

NO_{x_d} = Oxides of nitrogen concentration of the dilution air as measured, in p.p.m.

CO_{mass} = Carbon monoxide emissions, in grams per test phase.

$Density_{CO}$ = Density of carbon monoxide in grams per cubic foot at 68° F. and 760 mm. Hg pressure (32.97 gm./cu. ft.).

CO_{conc} = Carbon monoxide concentration of the dilute exhaust sample corrected for background, water vapor and CO_2 extraction, in p.p.m.

$$CO_{conc} = CO_e - CO_d(1 - 1/DF)$$

where:

CO_e = Carbon monoxide concentration of the dilute exhaust sample volume corrected for water vapor and carbon dioxide extraction, in p.p.m. The calculation assumes the carbon to hydrogen ratio of the fuel is 1:1.85.

$$CO_e = (1 - 0.01925 CO_{2e} - 0.00323R)\, CO_{em}$$

where:

CO_{em} = Carbon monoxide concentration of the dilute exhaust sample as measured in p.p.m.

CO_{2e} = Carbon dioxide concentration of the dilute exhaust sample, in mole percent.

R = Relative humidity of the dilution air, in percent.

CO_d = Carbon monoxide concentration of the dilution air corrected for water vapor extraction, in p.p.m.

$$CO_d = (1 - 0.000323R)\, CO_{dm}$$

where:

CO_{dm} = Carbon monoxide concentration of the dilution air sample as measured, in p.p.m.

$$DF = \frac{13.4}{CO_{2e} + (HC_e + CO_e) \times 10^{-4}}$$

V_{mix} = Total dilute exhaust volume in cubic feet per test phase corrected to standard conditions (528° R and 760 mm. Hg).

$$V_{mix} = V_o \times N \frac{(P_B - P_i)(528°R)}{(760 \text{ mm. } Hg)(T_p)}$$

where:

V_o = Volume of gas pumped by the positive displacement pump, in cubic feet per revolution. This volume is dependent on the pressure differential across the positive displacement pump.

N = Number of revolutions of the positive displacement pump during the test phase while samples are being collected.

P_B = Barometric pressure in mm. Hg.

P_i = Pressure depression below atmosphere measured at the inlet to the positive displacement pump.

T_p = Average temperature of dilute exhaust entering positive displacement pump during test while samples are being collected, in degrees Rankine.

K_H = Humidity correction factor.

$$K_H = \frac{1}{1 - 0.0047(H - 75)}$$

where:

H = Absolute humidity in grains of water per pound of dry air.

$$H = \frac{(43.478)\, R_a \times P_d}{P_B - P_d \times R_a/100)}$$

R_a = Relative humidity of the ambient air, in percent.

P_d = Saturated vapor pressure in mm. Hg at the ambient dry bulb temperature.

(d) Example calculation of mass emission values:

(1) For the "transient" phase of the cold start test assume $V_o = 0.29344$ cu. ft. per revolution; $N = 10{,}485$; $R = 48.0\%$; $R_a = 48.2\%$; $P_B = 762$ mm. Hg; $P_d = 22.225$ mm. Hg; $P_i = 70$ mm. Hg; $T_p = 570°R$; $HC_e = 105.8$ p.p.m. carbon equivalent; $NO_{x_e} = 11.2$ p.p.m.; $CO_{em} = 306.6$ p.p.m.; $CO_{2e} = 1.43\%$; $HC_d = 12.1$ p.p.m.; $NO_{x_d} = 0.8$ p.p.m.; $CO_{dm} = 15.3$ p.p.m. Then:

$$V_{mix} = \frac{(0.29344)(10{,}465)(762-70)(528)}{(760)(570)} = 2595.0 \text{ cu. ft. per test phase.}$$

$$H = \frac{(43.478)(48.2)(22.225)}{762 - (22.225 \times 48.2/100)}$$

$$K_H = \frac{1}{1 - 0.0047(62 - 75)} = 0.9424.$$

$$CO_e = (1 - 0.01925(1.43) - 0.000323(48))306.6 = 293.4 \text{ p.p.m.}$$

$$CO_d = (1 - 0.000323(48))15.3 = 15.1 \text{ p.p.m.}$$

$$DF = \frac{13.4}{1.43 + (105.8 + 293.4) \times 10^{-4}} = 9.116.$$

$$HC_{conc} = 105.8 - 12.1(1 - 1/9.116) = 95.03.$$

$$HC_{mass} = (2595)(16.33)(95.03/1{,}000{,}000) = 4.027 \text{ grams per test phase.}$$

$$NO_{x_{conc}} = 11.2 - 0.8(1 - 1/9.116) = 10.49.$$

$$NO_{x_{mass}} = (2595)(54.16)(10.49/1{,}000{,}000)(0.9424) = 1.389 \text{ grams per test phase.}$$

$$CO_{conc} = 293.4 - 15.1(1 - 1/9.116) = 280.$$

$$CO_{mass} = (2595)(32.97)(280/1{,}000{,}000) = 23.96 \text{ grams per test phase.}$$

(2) For the "stabilized" portion of the cold start test assume that similar calculations resulted in $HC_{mass} = 0.62$ grams per test phase; $NO_{x_{mass}} = 1.27$ grams per test phase; and $CO_{mass} = 5.98$ grams per test phase.

(3) For the "transient" portion of the hot start test assume that similar calculations resulted in $HC_{mass} = 0.51$ grams per test phase; $NO_{x_{mass}}$ 1.38 grams per test phase; and $CO_{mass} = 5.01$ grams per test phase.

(4) For a 1975 light duty vehicle:

$$HC_{vm} = ((0.43)(4.027) + (0.57)(0.51) + 0.62)/7.5 = 0.352 \text{ gram per vehicle mile.}$$

$$NO_{x_{vm}} = ((0.43)(1.389) + (0.57)(1.38) + 1.27)/7.5 = 0.354 \text{ gram per vehicle mile.}$$

$$CO_{vm} = ((0.43)(23.96) + (0.57)(5.01) + 5.98)/7.5 = 2.55 \text{ grams per vehicle mile.}$$

§ 85.075–27 Calculations (fuel evaporative emissions).

The net weights of the individual collection traps employed in § 85.075–13 shall be added together to determine compliance with the fuel evaporative emission standard.

§ 85.075–28 Compliance with emission standards.

(a) The exhaust and fuel evaporative emission standards in § 85.075–1 apply to the emissions of vehicles for their useful life.

(b) Since emission control efficiency decreases with mileage accumulated on the vehicle, the emission level of a vehicle which has accumulated 50,000 miles will be used as the basis for determining compliance with the standards.

(c) The procedure for determining compliance of a new light duty motor vehicle with exhaust and fuel evaporative emission standards is as follows:

(1) Separate emission deterioration factors shall be determined from the emissions results of the durability data vehicles for each engine-system combination. A separate factor shall be established for the combination for exhaust *HC*, exhaust *CO*, exhaust NO_x, and fuel evaporative HC.

(i) The applicable results to be used in determining the deterioration factors for each combination shall be:

(*a*) All emission data from the tests required under § 85.075–7(b), except the zero mile tests. This shall include the official test results, as determined in § 85.075–29, for all tests conducted on all durability vehicles of the combination selected under § 85.075–5(c) (including all vehicles elected to be operated by the manufacturer under § 85.075–5(c)(3)). Where the Administrator has agreed to a mileage less than 50,000 miles in accordance with § 85.075–7(b), the data for mileages greater than that actually run will be determined by extrapolating the test data generated at lesser mileages.

(*b*) All emission data from the tests conducted before and after the maintenance provided in § 85.075–6(a)(1)(i).

(ii) All applicable results shall be plotted as a function of the mileage on the system, rounded to the nearest mile, and the best fit straight lines, fitted by the method of least squares, shall be drawn through these data points. The interpolated 4,000- and 50,000-mile points on this line must be within the standards provided in § 85.075–1 or the data will not be acceptable for use in calculation of a deterioration factor.

(iii) An exhaust emission deterioration factor shall be calculated for each combination as follows:

$$\text{factor} = \frac{\text{exhaust emissions interpolated to 50,000 miles}}{\text{exhaust emissions interpolated to 4,000 miles}}$$

(iv) An evaporative emission deterioration factor shall be calculated for each combination by subtracting the evaporative emissions interpolated to 4,000 miles from the evaporative emissions interpolated to 50,000 miles.

(2) (i) The exhaust emission test results for each emission data vehicle shall be multiplied by the appropriate deterioration factor: *Provided*, That if a deterioration factor as computed in subparagraph (1)(iii) of this paragraph is

less than one, that deterioration factor shall be one for the purposes of this subparagraph.

(ii) The evaporative emission test results for each combination shall be adjusted by addition of the appropriate deterioration factor: *Provided*, That if a deterioration factor as computed in subparagraph (1)(iv) of this paragraph is less than zero, that deterioration factor shall be zero for the purposes of this subparagraph.

(3) The emissions to compare with the standard shall be the adjusted emissions of subparagraph (2) (i) and (ii) of this paragraph for each emission data vehicle.

(4) Every test vehicle of an engine family must comply with all applicable standards, as determined in subparagraph (3) of this paragraph, before any vehicle in that family may be certified.

§ 85.075–29 Testing by the Administrator.

(a) The Administrator may require that any one or more of the test vehicles be submited to him, at such place or places as he may designate, for the purpose of conducting emissions tests. The Administrator may specify that he will conduct such testing at the manufacturer's facility, in which case instrumentation and equipment specified by the Administrator shall be made available by the manufacturer for test operations. Any testing conducted at a manufacturer's facility pursuant to this paragraph shall be scheduled by the manufacturer as promptly as possible.

(b)(1) Whenever the Administrator conducts a test on a test vehicle, the results of that test shall comprise the official data for the vehicle at that prescribed test point.

(2) Whenever the Administrator does not conduct a test on a test vehicle at a test point, the manufacturer's test data will be accepted as the official data for that test point: *Provided*, That if the Administrator makes a determination based on testing under paragraph (a) of this section, that there is a lack of correlation between the manufacturer's test equipment and the test equipment used by the Administrator, no manufacturer's test data will be accepted for purposes of certification until the reasons for the lack of correlation are determined and the validity of the data is established by the manufacturer.

(3) If the Administrator determines that the test data developed under paragraph (a) of this section would cause a vehicle to fail due to excessive 4,000-mile or excessive deterioration, then the following procedure shall be observed:

(i) The manufacturer may request a retest. Before the retest, the vehicle may be adjusted to manufacturer's specifications, and parts may be replaced in accordance with § 85.075-6. All work on the vehicle shall be done at such location and under such conditions as the Administrator may prescribe.

(ii) The vehicle will be retested by the Administrator and the results of this test shall comprise the official data for that prescribed test point.

(4) If sufficient durability data is not available, at the time of any emission test conducted under paragraph (a) of this section, to enable the Administrator to determine whether a test vehicle would fail, the manufacturer may request a retest in accordance with the provisions of subparagraph (3) (i) and (ii) of this paragraph. If the manufacturer does not promptly make such request, he shall be deemed to have waived the right to a retest. A request for retest must be made before the manufacturer removes the vehicle from the test premises.

§ 85.075–30 Certification.

(a) (1) If, after a review of the test reports and data submitted by the manufacturer and data derived from any additional testing conducted pursuant to § 85.075–29, the Administrator determines that a test vehicle(s) conforms to the regulations of this subpart, he will issue a certificate of conformity with respect to such vehicle(s).

(2) Such certificate will be issued for such period not more than 1 year as the Administrator may determine and upon such terms as he may deem necessary to assure that any new motor vehicle covered by the certificate will meet the requirements of these regulations relating to durability and performance.

(b)(1) The Administrator will determine wther a vehicle covered by the application complies with applicable standards by observing the following relationships:

(i) A test vehicle selected under § 85.075–5(b)(2) or (4), shall represent all vehicles in the same engine family of the same engine displacement-exhaust emission control system-evaporative emission control system combination.

(ii) A test vehicle selected under § 85.075–5(b)(3), shall represent all vehicles in the same engine family of the same engine displacement-exhaust emission control system-transmission type-fuel system combination.

(iii) A test vehicle selected under § 85.-075–5(c)(1), shall represent all vehicles of the same engine-system combination.

(2) The Administrator will proceed as in paragraph (a) of this section with respect to the vehicles belonging to an engine family all of which comply with applicable standards.

(3) If, after a review of the test reports and data submitted by the manufacturer and data derived from any additional testing conducted pursuant to § 85.075–29, the Administrator determines that one or more test vehicles of the certification test fleet do not meet applicable standards, he will notify the manufacturer in writing, setting forth the basis for his determination. Within 30 days following receipt of the notification, the manufacturer may request a hearing on the Administrator's determination. The request shall be in writing, signed by an authorized representative of the manufacturer and shall include a statement specifying the manufacturer's objections to the Administrator's determination, and data in support of such objections. If, after a review of the request and supporting data, the Administrator finds that the request raises a substantial factual issue, he shall provide the manufacturer a hearing in accordance with § 85.005 with respect to such issue.

(4) The manufacturer may, at his option, proceed with any of the following alternatives with respect to any engine family represented by a test vehicle(s) determined not in compliance with applicable standards:

(i) Request a hearing under § 85.005, or

(ii) Delete from the application for certification the vehicles represented by the failing test vehicle. (Vehicles so deleted may be included in a later request for certification under § 85.075–32.) The Administrator will then select in place of each failing vehicle an alternate vehicle chosen in accordance with selection criteria employed in selecting the vehicle that failed, or

(iii) Modify the test vehicle and demonstrate by testing that it meets applicable standards. Another vehicle which is in all material respects the same as the first vehicle, as modified, shall then be operated and tested in accordance with applicable test procedures.

(5) If the manufacturer does not request a hearing or present the required data under subparagraph (4) of this paragraph, the Administrator will deny certification.

§ 85.075–31 Separate certification.

Where possible a manufacturer should include in a single application for certification all vehicles for which certification is required. A manufacturer may, however, choose to apply separately for certification of part of his product line. The selection of test vehicles and the computation of test results will be determined separately for each application.

§ 85.075–32 Addition of a vehicle after certification.

(a) If a manufacturer proposes to add to his product line a vehicle of the same engine-system combination as vehicles previously certified but which was not described in the application for certification when the test vehicle(s) representing other vehicles of that combination was certified, he shall notify the Administrator. Such notification shall be in advance of the addition unless the manufacturer elects to follow the procedure described in § 85.075–34. This notification shall include a full description of the vehicle to be added.

(b) The Administrator may require the manufacturer to perform such tests on the test vehicle(s) representing the vehicle to be added which would have been required if the vehicle had been included in the original application for certification.

(c) If, after a review of the test reports and data submitted by the manufacturer, and data derived from any testing conducted under § 85.075–29, the Administrator determines that the test vehicle(s) meets all applicable standards, the appropriate certificate will be amended accordingly. If the Administrator determines that the test vehicle(s) does not meet applicable standards, he will proceed under § 85.075–30(b).

§ 85.075–33 Changes to a vehicle covered by certification.

(a) The manufacturer shall notify the Administrator of any change in production vehicles in respect to any of the parameters listed in § 85.075–5(a)(3), giving a full description of the chnage. Such notification shall be in advance of the change unless the manufacturer elects to follow the procedure described in § 85.075–34.

(b) Based upon the description of the change, and data derived from such testing as the Administrator many require or conduct, the Administrator will determine whether the vehicle, as modified, would still be covered by the certificate of conformity then in effect.

(c) If the Administrator determines that the outstanding certificate would cover the modified vehicles, he will notify the manufacturer in writing. Except as provided in § 85.075–34 the change may not be put into effect prior to the manufacturer's receiving this notification. If the Administrator determines that the modified vehicles would not be covered by the certificate then in effect, then the modified vehicles shall be treated as additions to the product line subject to § 85.075–32.

§ 85.075–34 Alternative procedure for notification of additions and changes.

(a) A manufacturer may, in lieu of notifying the Administrator in advance of an addition of a vehicle under § 85.705–32 or a change in a vehicle under § 85.-075–33, notify him concurrently with the making of the change if the manufacturer believes the addition or change will not require any testing under the appropriate section. Upon notification to the Administrator, the manufacturer may proceed to put the addition or change into effect.

(b) The manufacturer may continue to produce vehicles as described in the notification to the Administrator for a maximum of 30 days, unless the Administrator grants an extension in writing. This period may be shortened by a notification in accordance with paragraph (c) of this section.

(c) If the Administrator determines, based upon a description of the addition or change, that no test data will be required, he will notify the manufacturer in writing of the acceptability of the addition or change. If the Administrator determines that test data will be required, he will notify the manufacturer to rescind the change within 5 days of receipt of the notification. The Administrator will then proceed as in § 85.075–32 (b) and (c), or § 85.075–33 (b) and (c) as appropriate.

(d) Election to produce vehicles under this section will be deemed to be a consent to recall all vehicles which the Administrator determined under § 85.075–32(c) do not meet applicable standards, and to cause such nonconformity to be remedied at no expense to the owner.

§ 85.075–35 Labeling.

(a)(1) The manufacturer of any light duty motor vehicle subject to the standards prescribed in § 85.075–1 shall, at the time of manufacture, affix a permanent, legible label, of the type and in the manner described below, containing the information hereinafter provided, to all production models of such vehicles available for sale to the public and covered by a certificate of conformity under § 85.075–30(a).

(2) A plastic or metal label shall be welded, riveted, or otherwise permanently attached in a readily visible position in the engine compartment.

(3) The label shall be affixed by the vehicle manufacturer, who has been issued the certificate of conformity for such vehicle, in such a manner that it cannot be removed without destroying or defacing the label, and shall not be affixed to any equipment which is easily detached from such vehicle.

(4) The label shall contain the following information lettered in the English language in block letters and numerals, which shall be of a color that contrasts with the background of the label:

(i) The label heading: Vehicle Emission Control Information;

(ii) Full corporate name and trademark of manufacturer;

(iii) Engine displacement (in cubic inches) and engine family identification;

(iv) Engine tuneup specifications and adjustments, as recommended by the manufacturer, including idle speed, ignition timing, and the idle air-fuel mixture setting procedure and value (e.g. idle CO, idle air-fuel ratio, idle speed drop). These specifications should indicate the proper transmission position during tuneup and what accessories (e.g., air-conditioner), if any, should be in operation;

(v) The statement: "This Vehicle Conforms to U.S.E.P.A. Regulations Applicable to 1975 Model Year New Motor Vehicles."

(b) The provisions of this section shall not prevent a manufacturer from also reciting on the label that such vehicle or engine conforms to any applicable State emission standards for new motor vehicles or any other information that such manufacturer deems necessary for, or useful to, the proper operation and satisfactory maintenance of the vehicle.

§ 85.075–36 Submission of vehicle identification numbers.

(a) The manufacturer of any light duty motor vehicle covered by a certificate of conformity under § 85.075–30(a) shall, not later than 60 days after its manufacture, submit to the Administrator the vehicle identification number of such vehicle: *Provided*, That this requirement shall not apply with respect to any vehicle manufactured within any State, as defined in section 302(d) of the Act.

(b) The requirements of this section may be waived with respect to any manufacturer who provides information satisfactory to the Administrator which will enable the Administrator to identify those vehicles which are covered by a certificate of conformity.

§ 85.075–37 Production vehicles.

(a) Any manufacturer obtaining certification under this subpart shall supply to the Administrator, upon his request, a reasonable number of production vehicles selected by the Administrator which are representative of the engines, emission control systems, fuel systems, and transmissions offered and typical of production models available for sale under the certificate. These vehicles shall be supplied for testing at such time and place and for such reasonable periods as the Administrator may require.

(b) Any manufacturer obtaining certification under this subpart shall notify the Administrator, on a quarterly basis, of the number of vehicles of each engine family-engine displacement-exhaust emission control system-fuel system-transmission type-inertia weight class combination produced for sale in the United States during the preceding quarter. A manufacturer may elect to provide this information every 60 days instead or quarterly, to combine it with the notification required under § 85.075–36.

(c) All light duty vehicles covered by a certificate of conformity under § 85.-075–30(a) shall be adjusted by the manufacturer to the ignition timing specification detailed in § 85.072–35(a)(4)(iv).

§ 85.075–38 Maintenance instructions.

(a) The manufacturer shall furnish or cause to be furnished to the ultimate purchaser of each new motor vehicle subject to the standards prescribed in § 85.075–1, written instructions for the maintenance and use of the vehicle by the ultimate purchaser as may be reasonable and necessary to assure the proper functioning of emission control systems.

(1) Such instructions shall be provided for those vehicle and engine components listed in Appendix VI to this part (and for any other components) to the extent that maintenance of these components is necessary to assure the proper functioning of emission control systems.

(2) Such instructions shall be in clear, and to the extent practicable, nontechnical language.

(b) The maintenance instructions required by this section shall contain a general description of the documentation which the manufacturer will require from the ultimate purchaser or any subsequent purchaser as evidence of compliance with the instructions.

§ 85.075–39 Submission of maintenance instructions.

(a) The manufacturer shall provide to the Administrator, no later than the time of the submission required by § 85.075–4, a copy of the maintenance instructions which the manufacturer proposes to supply to the ultimate purchaser in accordance with § 85.075–38(a). The Administrator will review such instruc-

APPENDIX I

EPA URBAN DYNAMOMETER DRIVING SCHEDULE
(Speed versus Time Sequence)

Time (sec.)	Speed (m.p.h.)	Time (sec.)	Speed (m.p.h.)	Time (sec.)	Speed (m.p.h.)
0	0.0	57	19.8	114	32.2
1	0.0	58	21.6	115	31.7
2	0.0	59	23.2	116	28.6
3	0.0	60	24.2	117	25.3
4	0.0	61	24.6	118	22.0
5	0.0	62	24.9	119	18.7
6	0.0	63	25.0	120	15.4
7	0.0	64	24.6	121	12.1
8	0.0	65	24.5	122	8.8
9	0.0	66	24.7	123	5.5
10	0.0	67	24.8	124	2.2
11	0.0	68	24.7	125	0.0
12	0.0	69	24.6	126	0.0
13	0.0	70	24.6	127	0.0
14	0.0	71	25.1	128	0.0
15	0.0	72	25.6	129	0.0
16	0.0	73	25.7	130	0.0
17	0.0	74	25.4	131	0.0
18	0.0	75	24.9	132	0.0
19	0.0	76	25.0	133	0.0
20	0.0	77	25.4	134	0.0
21	3.0	78	26.0	135	0.0
22	5.9	79	26.0	136	0.0
23	8.6	80	25.7	137	0.0
24	11.5	81	26.1	138	0.0
25	14.3	82	26.7	139	0.0
26	16.9	83	27.5	140	0.0
27	17.3	84	28.6	141	0.0
28	18.1	85	29.3	142	0.0
29	20.7	86	29.8	143	0.0
30	21.7	87	30.1	144	0.0
31	22.4	88	30.4	145	0.0
32	22.5	89	30.7	146	0.0
33	22.1	90	30.7	147	0.0
34	21.5	91	30.5	148	0.0
35	20.9	92	30.4	149	0.0
36	20.4	93	30.3	150	0.0
37	19.8	94	30.4	151	0.0
38	17.0	95	30.8	152	0.0
39	14.9	96	30.4	153	0.0
40	14.9	97	29.9	154	0.0
41	15.2	98	29.5	155	0.0
42	15.5	99	29.8	156	0.0
43	16.0	100	30.3	157	0.0
44	17.1	101	30.7	158	0.0
45	19.1	102	30.9	159	0.0
46	21.1	103	31.0	160	0.0
47	22.7	104	30.9	161	0.0
48	22.9	105	30.4	162	0.0
49	22.7	106	29.8	163	0.0
50	22.6	107	29.9	164	3.3
51	21.3	108	30.2	165	6.6
52	19.0	109	30.7	166	9.9
53	17.1	110	31.2	167	13.2
54	15.8	111	31.8	168	16.5
55	15.8	112	32.2	169	19.8
56	17.7	113	32.4	170	22.2

APPENDIX I—Continued

Time (sec.)	Speed (m.p.h.)	Time (sec.)	Speed (m.p.h.)	Time (sec.)	Speed (m.p.h.)
171	24.3	274	52.5	376	36.0
172	25.8	275	53.0	377	36.0
173	26.4	276	53.5	378	36.1
174	25.7	277	54.0	379	36.4
175	25.1	278	54.9	380	36.5
176	24.7	279	55.4	381	36.4
177	25.0	280	55.6	382	36.0
178	25.2	281	56.0	383	35.1
179	25.4	282	56.0	384	34.1
180	25.8	283	55.8	385	33.5
181	27.2	284	55.2	386	31.4
182	26.5	285	54.5	387	29.0
183	24.0	286	53.6	388	25.7
184	22.7	287	52.5	389	23.0
185	19.4	288	51.5	390	20.3
186	17.7	289	51.5	391	17.5
187	17.2	290	51.5	392	14.5
188	18.1	291	51.1	393	12.0
189	18.6	292	50.1	394	8.7
190	20.0	293	50.0	395	5.4
191	22.2	294	50.1	396	2.1
192	24.5	295	50.0	397	0.0
193	27.3	296	49.6	398	0.0
194	30.5	297	49.5	399	0.0
195	33.5	298	49.5	400	0.0
196	36.2	299	49.5	401	0.0
197	37.3	300	49.1	402	0.0
198	39.3	301	48.6	403	2.6
199	40.5	302	48.1	404	5.9
200	42.1	303	47.2	405	9.2
201	43.5	304	46.1	406	12.5
202	45.1	305	45.0	407	15.8
203	46.0	306	43.8	408	19.1
204	46.8	307	42.6	409	22.4
205	47.5	308	41.5	410	25.0
206	47.5	309	40.3	411	25.6
207	47.3	310	38.5	412	27.5
208	47.2	311	37.0	413	29.0
209	47.0	312	35.2	414	30.0
210	47.0	313	33.8	415	30.1
211	47.0	314	32.5	416	30.0
212	47.0	315	31.5	417	29.7
213	47.0	316	30.6	418	29.3
214	47.2	317	30.5	419	28.8
215	47.4	318	30.0	420	28.0
216	47.9	319	29.0	421	25.0
217	48.5	320	27.5	422	21.7
218	49.1	321	24.8	423	18.4
219	49.5	322	21.5	424	15.1
220	50.0	323	20.1	425	11.8
221	50.6	324	19.1	426	8.5
222	51.0	325	18.5	427	5.2
223	51.5	326	17.0	428	1.9
224	52.2	327	15.5	429	0.0
225	53.2	328	12.5	430	0.0
226	54.1	329	10.8	431	0.0
227	54.6	330	8.0	432	0.0
228	54.9	331	4.7	433	0.0
229	55.0	332	1.4	434	0.0
230	54.9	333	0.0	435	0.0
231	54.6	334	0.0	436	0.0
232	54.6	335	0.0	437	0.0
233	54.8	336	0.0	438	0.0
234	55.1	337	0.0	439	0.0
235	55.5	338	0.0	440	0.0
236	55.7	339	0.0	441	0.0
237	56.1	340	0.0	442	0.0
238	56.3	341	0.0	443	0.0
239	56.6	342	0.0	444	0.0
240	56.7	343	0.0	445	0.0
241	56.7	344	0.0	446	0.0
242	56.5	345	0.0	447	0.0
243	56.5	346	0.0	448	3.3
244	56.5	347	1.0	449	6.6
245	56.5	348	4.3	450	9.9
246	56.5	349	7.6	451	13.2
247	56.5	350	10.9	452	16.5
248	56.4	351	14.2	453	19.8
249	56.1	352	17.3	454	23.1
250	55.8	353	20.0	455	26.4
251	55.1	354	22.5	456	27.8
252	54.6	355	23.7	457	29.1
253	54.2	356	25.2	458	31.[illegible]
254	54.0	357	26.6	459	33.[illegible]
255	53.7	358	28.1	460	33.[illegible]
256	53.6	359	30.0	461	34.[illegible]
257	53.9	360	30.8	462	35.1
258	54.0	361	31.6	463	35.[illegible]
259	54.1	362	32.1	464	36.1
260	54.1	363	32.8	465	36.[illegible]
261	53.8	364	33.6	466	36.1
262	53.4	365	34.5	467	36.[illegible]
263	53.0	366	34.6	468	36.[illegible]
264	52.6	367	34.9	469	35.[illegible]
265	52.1	368	34.8	470	36.[illegible]
266	52.4	369	34.5	471	36.[illegible]
267	52.0	370	34.7	472	35.[illegible]
268	51.9	371	35.5	473	35.[illegible]
269	51.7	372	36.0	474	35.[illegible]
270	51.5	373	36.0	475	35.[illegible]
271	51.6	374	36.0	476	35.[illegible]
272	51.8	375	36.0	477	35.[illegible]
273	52.1			478	35.[illegible]

APPENDIX I—Continued

Time (sec.)	Speed (m.p.h.)	Time (sec.)	Speed (m.p.h.)	Time (sec.)	Speed (m.p.h.)
479	35.2	582	17.0	685	0.0
480	35.2	583	16.9	686	0.0
481	35.0	584	16.6	687	0.0
482	35.1	585	17.0	688	0.0
483	35.2	586	17.1	689	0.0
484	35.5	587	17.0	690	0.0
485	35.2	588	16.6	691	0.0
486	35.0	589	16.5	692	0.0
487	35.0	590	16.5	693	0.0
488	35.0	591	16.6	694	1.4
489	34.8	592	17.0	695	3.3
490	34.6	593	17.6	696	4.4
491	34.5	594	18.5	697	6.5
492	33.5	595	19.2	698	9.2
493	32.0	596	20.2	699	11.3
494	30.1	597	21.0	700	13.5
495	28.0	598	21.1	701	14.6
496	25.5	599	21.2	702	16.4
497	22.5	600	21.6	703	16.7
498	19.8	601	22.0	704	16.5
499	16.5	602	22.4	705	16.5
500	13.2	603	22.5	706	18.2
501	10.3	604	22.5	707	19.2
502	7.2	605	22.5	708	20.1
503	4.0	606	22.7	709	21.5
504	1.0	607	23.7	710	22.5
505	0.0	608	25.1	711	22.5
506	0.0	609	26.0	712	22.1
507	0.0	610	26.5	713	22.7
508	0.0	611	27.0	714	23.3
509	0.0	612	26.1	715	23.5
510	0.0	613	22.8	716	22.5
511	1.2	614	19.5	717	21.6
512	3.5	615	16.2	718	20.5
513	5.5	616	12.9	719	18.0
514	6.5	617	9.6	720	15.0
515	8.5	618	6.3	721	12.0
516	9.6	619	3.0	722	9.0
517	10.5	620	0.0	723	6.2
518	11.9	621	0.0	724	4.5
519	14.0	622	0.0	725	3.0
520	16.0	623	0.0	726	2.1
521	17.7	624	0.0	727	0.5
522	19.0	625	0.0	728	0.5
523	20.1	626	0.0	729	3.2
524	21.0	627	0.0	730	6.5
525	22.0	628	0.0	731	9.6
526	23.0	629	0.0	732	12.5
527	23.8	630	0.0	733	14.0
528	24.5	631	0.0	734	16.0
529	24.9	632	0.0	735	18.0
530	25.0	633	0.0	736	19.6
531	25.0	634	0.0	737	21.5
532	25.0	635	0.0	738	23.1
533	25.0	636	0.0	739	24.5
534	25.0	637	0.0	740	25.8
535	25.0	638	0.0	741	26.5
536	25.6	639	0.0	742	27.1
537	25.8	640	0.0	743	27.6
538	26.0	641	0.0	744	27.9
539	25.6	642	0.0	745	28.3
540	25.2	643	0.0	746	28.6
541	25.0	644	0.0	747	28.6
542	25.0	645	0.0	748	28.3
543	25.0	646	2.0	749	28.2
544	24.4	647	4.5	750	28.0
545	23.1	648	7.8	751	27.5
546	19.8	649	10.2	752	26.8
547	16.5	650	12.5	753	25.5
548	13.2	651	14.0	754	23.5
549	9.9	652	15.3	755	21.5
550	6.6	653	17.5	756	19.0
551	3.3	654	19.6	757	16.5
552	0.0	655	21.0	758	14.9
553	0.0	656	22.2	759	12.5
554	0.0	657	23.3	760	9.4
555	0.0	658	24.5	761	6.2
556	0.0	659	25.3	762	3.0
557	0.0	660	25.6	763	1.5
558	0.0	661	26.0	764	1.5
559	0.0	662	26.3	765	0.5
560	0.0	663	26.2	766	0.0
561	0.0	664	26.2	767	3.0
562	0.0	665	26.4	768	6.3
563	0.0	666	26.5	769	9.6
564	0.0	667	26.5	770	12.9
565	0.0	668	26.0	771	15.8
566	0.0	669	25.5	772	17.8
567	0.0	670	23.6	773	18.4
568	0.0	671	21.4	774	19.8
569	3.3	672	18.5	775	20.7
570	6.6	673	16.4	776	22.0
571	9.9	674	14.5	777	23.2
572	13.0	675	11.6	778	25.0
573	14.6	676	8.7	779	26.8
574	16.0	677	5.8	780	27.8
575	17.0	678	3.5	781	28.0
576	17.0	679	2.0	782	28.3
577	17.0	680	0.0	783	28.9
578	17.5	681	0.0	784	28.9
579	17.7	682	0.0	785	28.9
580	17.7	683	0.0	786	28.8
581	17.5	684	0.0	787	28.5

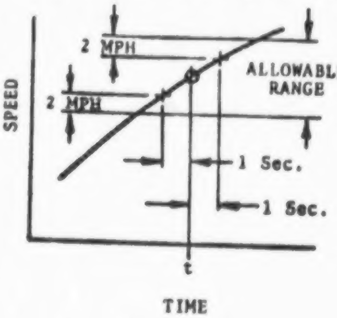
APPENDIX I—Continued

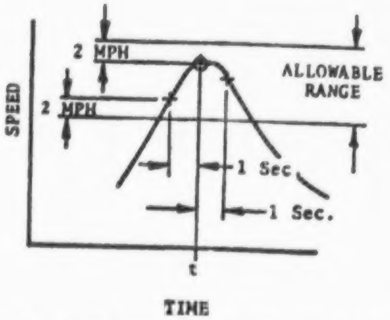
Time (sec.)	Speed (m.p.h.)	Time (sec.)	Speed (m.p.h.)	Time (sec.)	Speed (m.p.h.)
788	28.3	892	27.8	996	23.0
789	28.3	893	28.0	997	22.7
790	28.3	894	27.8	998	22.7
791	28.2	895	28.0	999	22.7
792	27.6	896	28.0	1,000	23.5
793	27.5	897	28.0	1,001	24.0
794	27.5	898	27.7	1,002	24.6
795	27.5	899	27.4	1,003	24.8
796	27.5	900	26.9	1,004	25.1
797	27.5	901	26.6	1,005	25.5
798	27.5	902	26.5	1,006	25.6
799	27.6	903	26.5	1,007	25.5
800	28.0	904	26.5	1,008	25.0
801	28.5	905	26.3	1,009	24.1
802	30.0	906	26.2	1,010	23.7
803	31.0	907	26.2	1,011	23.2
804	32.0	908	25.9	1,012	22.9
805	33.0	909	25.6	1,013	22.5
806	33.0	910	25.6	1,014	22.0
807	33.6	911	25.9	1,015	21.6
808	34.0	912	25.8	1,016	20.5
809	34.3	913	25.5	1,017	17.5
810	34.2	914	24.6	1,018	14.2
811	34.0	915	23.5	1,019	10.9
812	34.0	916	22.2	1,020	7.6
813	33.9	917	21.6	1,021	4.3
814	33.6	918	21.6	1,022	1.0
815	33.1	919	21.7	1,023	0.0
816	33.0	920	22.6	1,024	0.0
817	32.5	921	23.4	1,025	0.0
818	32.0	922	24.0	1,026	0.0
819	31.9	923	24.2	1,027	0.0
820	31.6	924	24.4	1,028	0.0
821	31.5	925	24.9	1,029	0.0
822	30.6	926	25.1	1,030	0.0
823	30.0	927	25.2	1,031	0.0
824	29.9	928	25.3	1,032	0.0
825	29.9	929	25.5	1,033	0.0
826	29.9	930	25.2	1,034	0.0
827	29.9	931	25.0	1,035	0.0
828	29.6	932	25.0	1,036	0.0
829	29.5	933	25.0	1,037	0.0
830	29.5	934	24.7	1,038	0.0
831	29.3	935	24.5	1,039	0.0
832	28.9	936	24.3	1,040	0.0
833	28.2	937	24.3	1,041	0.0
834	27.7	938	24.5	1,042	0.0
835	27.0	939	25.0	1,043	0.0
836	25.5	940	25.0	1,044	0.0
837	23.7	941	24.6	1,045	0.0
838	22.0	942	24.6	1,046	0.0
839	20.5	943	24.1	1,047	0.0
840	19.2	944	24.5	1,048	0.0
841	19.2	945	25.1	1,049	0.0
842	20.1	946	25.6	1,050	0.0
843	20.9	947	25.1	1,051	0.0
844	21.4	948	24.0	1,052	0.0
845	22.0	949	22.0	1,053	1.2
846	22.6	950	20.1	1,054	4.0
847	23.2	951	16.9	1,055	7.3
848	24.0	952	13.6	1,056	10.6
849	25.0	953	10.3	1,057	13.9
850	26.0	954	7.0	1,058	17.0
851	26.6	955	3.7	1,059	18.5
852	26.6	956	0.4	1,060	20.0
853	26.8	957	0.0	1,061	21.8
854	27.0	958	0.0	1,062	23.0
855	27.2	959	0.0	1,063	24.0
856	27.8	960	2.0	1,064	24.8
857	28.1	961	5.0	1,065	25.6
858	28.8	962	8.6	1,066	26.5
859	28.9	963	11.9	1,067	26.8
860	29.0	964	15.2	1,068	27.4
861	29.1	965	17.5	1,069	27.9
862	29.0	966	18.6	1,070	28.3
863	28.1	967	20.0	1,071	28.0
864	27.5	968	21.1	1,072	27.5
865	27.0	969	22.0	1,073	27.0
866	25.8	970	23.0	1,074	27.0
867	25.0	971	24.5	1,075	26.3
868	24.5	972	26.3	1,076	24.5
869	24.8	973	27.5	1,077	22.5
870	25.1	974	28.1	1,078	21.5
871	25.5	975	28.4	1,079	20.6
872	25.7	976	28.5	1,080	18.0
873	26.2	977	28.5	1,081	15.0
874	26.9	978	28.5	1,082	12.3
875	27.5	979	27.7	1,083	11.1
876	27.8	980	27.5	1,084	10.6
877	28.4	981	27.2	1,085	10.0
878	29.0	982	26.8	1,086	9.5
879	29.2	983	26.5	1,087	9.1
880	29.1	984	26.0	1,088	8.7
881	29.0	985	25.7	1,089	8.6
882	28.9	986	25.2	1,090	8.8
883	28.5	987	24.0	1,091	9.0
884	28.1	988	22.0	1,092	8.7
885	28.0	989	21.5	1,093	8.6
886	28.0	990	21.5	1,094	8.0
887	27.6	991	21.8	1,095	7.0
888	27.2	992	22.5	1,096	5.0
889	26.6	993	23.0	1,097	4.2
890	27.0	994	22.8	1,098	2.6
891	27.5	995	22.8	1,099	1.0

APPENDIX I—Continued

Time (sec.)	Speed (m.p.h.)	Time (sec.)	Speed (m.p.h.)	Time (sec.)	Speed (m.p.h.)
1,100	0.0	1,191	0.0	1,282	23.5
1,101	0.1	1,192	0.0	1,283	23.5
1,102	0.6	1,193	0.0	1,284	23.5
1,103	1.6	1,194	0.0	1,285	23.5
1,104	3.6	1,195	0.0	1,286	23.5
1,105	6.9	1,196	0.0	1,287	23.5
1,106	10.0	1,197	0.2	1,288	24.0
1,107	12.8	1,198	1.5	1,289	24.1
1,108	14.0	1,199	3.5	1,290	24.5
1,109	14.5	1,200	6.5	1,291	24.7
1,110	16.0	1,201	9.8	1,292	25.0
1,111	18.1	1,202	12.0	1,293	25.4
1,112	20.0	1,203	12.9	1,294	25.6
1,113	21.0	1,204	13.0	1,295	25.7
1,114	21.2	1,205	12.6	1,296	26.0
1,115	21.3	1,206	12.8	1,297	26.2
1,116	21.4	1,207	13.1	1,298	27.0
1,117	21.7	1,208	13.1	1,299	27.8
1,118	22.5	1,209	14.0	1,300	28.3
1,119	23.0	1,210	15.5	1,301	29.0
1,120	23.8	1,211	17.0	1,302	29.1
1,121	24.5	1,212	18.6	1,303	29.0
1,122	25.0	1,213	19.7	1,304	28.0
1,123	24.9	1,214	21.0	1,305	24.7
1,124	24.8	1,215	21.5	1,306	21.4
1,125	25.0	1,216	21.8	1,307	18.1
1,126	25.4	1,217	21.8	1,308	14.8
1,127	25.8	1,218	21.5	1,309	11.5
1,128	26.0	1,219	21.2	1,310	8.2
1,129	26.4	1,220	21.5	1,311	4.9
1,130	26.6	1,221	21.8	1,312	1.6
1,131	26.9	1,222	22.0	1,313	0.0
1,132	27.0	1,223	21.9	1,314	0.0
1,133	27.0	1,224	21.7	1,315	0.0
1,134	27.0	1,225	21.5	1,316	0.0
1,135	26.9	1,226	21.5	1,317	0.0
1,136	26.5	1,227	21.4	1,318	0.0
1,137	26.8	1,228	20.1	1,319	0.0
1,138	26.5	1,229	19.5	1,320	0.0
1,139	26.4	1,230	19.2	1,321	0.0
1,140	26.0	1,231	19.6	1,322	0.0
1,141	25.5	1,232	19.8	1,323	0.0
1,142	24.6	1,233	20.0	1,324	0.0
1,143	23.5	1,234	19.5	1,325	0.0
1,144	21.5	1,235	17.5	1,326	0.0
1,145	20.0	1,236	15.5	1,327	0.0
1,146	17.5	1,237	13.0	1,328	0.0
1,147	16.0	1,238	10.0	1,329	0.0
1,148	14.0	1,239	8.0	1,330	0.0
1,149	10.7	1,240	6.0	1,331	0.0
1,150	7.4	1,241	4.0	1,332	0.0
1,151	4.1	1,242	2.5	1,333	0.0
1,152	0.8	1,243	0.7	1,334	0.0
1,153	0.0	1,244	0.0	1,335	0.0
1,154	0.0	1,245	0.0	1,336	0.0
1,155	0.0	1,246	0.0	1,337	0.0
1,156	0.0	1,247	0.0	1,338	1.5
1,157	0.0	1,248	0.0	1,339	4.8
1,158	0.0	1,249	0.0	1,340	8.1
1,159	0.0	1,250	0.0	1,341	11.4
1,160	0.0	1,251	0.0	1,342	13.2
1,161	0.0	1,252	1.0	1,343	15.1
1,162	0.0	1,253	1.0	1,344	16.8
1,163	0.0	1,254	1.0	1,345	18.3
1,164	0.0	1,255	1.0	1,346	19.5
1,165	0.0	1,256	1.0	1,347	20.3
1,166	0.0	1,257	1.6	1,348	21.3
1,167	0.0	1,258	3.0	1,349	21.9
1,168	0.0	1,259	4.0	1,350	22.1
1,169	2.1	1,260	5.0	1,351	22.4
1,170	5.4	1,261	6.3	1,352	22.0
1,171	8.7	1,262	8.0	1,353	21.6
1,172	12.0	1,263	10.0	1,354	21.1
1,173	15.3	1,264	10.5	1,355	20.5
1,174	18.6	1,265	9.5	1,356	20.0
1,175	21.1	1,266	8.5	1,357	19.6
1,176	23.0	1,267	7.6	1,358	18.5
1,177	23.5	1,268	8.8	1,359	17.5
1,178	23.0	1,269	11.0	1,360	16.5
1,179	22.5	1,270	14.0	1,361	15.5
1,180	20.0	1,271	17.0	1,362	14.0
1,181	16.7	1,272	19.5	1,363	11.0
1,182	13.4	1,273	21.0	1,364	8.0
1,183	10.1	1,274	21.8	1,365	5.2
1,184	6.8	1,275	22.2	1,366	2.5
1,185	3.5	1,276	23.0	1,367	0.0
1,186	0.2	1,277	23.6	1,368	0.0
1,187	0.0	1,278	24.1	1,369	0.0
1,188	0.0	1,279	24.5	1,370	0.0
1,189	0.0	1,280	24.5	1,371	0.0
1,190	0.0	1,281	24.0	1,372	0.0

The diagrams below show the range of acceptable speed tolerances for typical points. The curve on the left is typical of portions of the speed curve which are increasing or decreasing throughout the two second time interval. The curve on the right is typical of portions of the speed curve which include a maximum or minimum value.





APPENDIX II

PROCEDURE FOR DYNAMOMETER ROAD HORSEPOWER CALIBRATION

This appendix describes the method for determining the road horsepower absorbed by a chassis dynamometer. The measured absorbed road horsepower includes the dynamometer friction as well as the power absorbed by the power absorption unit. The dynamometer is driven above the test speed range. The device used to drive the dynamometer is then disengaged from the dynamometer and the roll(s) is allowed to coast down. The kinetic energy of the system is dissipated by the dynamometer friction and absorption unit. This method neglects the variations in roll bearing friction due to the drive axle weight of the vehicle. The difference in coast down time of the free (rear) roll relative to the drive (front) roll may be neglected in the case of dynamometers with paired rolls.

These procedures shall be followed:

1. Devise a method to determine the speed of the drive roll if not already measured. A fifth wheel, revolution pickup or other suitable means may be used.
2. Place a vehicle on the dynamometer or devise another method of driving the dynamometer.
3. Engage inertia flywheel for the most common vehicle weight class for which the dynamometer is used.
4. Drive dynamometer up to 50 m.p.h.
5. Record indicated road horsepower.
6. Drive dynamometer up to 60 m.p.h.
7. Disengage the device used to drive the dynamometer.
8. Record the time for the dynamometer drive roll to coast down from 55 m.p.h. to 45 m.p.h.
9. Adjust the power absorption unit to a different level.
10. Repeat steps 4 to 9 above sufficient times to cover the range of road horsepower used.
11. Calculate absorbed road horsepower from:

$HP_d = (1/2)(W_1/32.2)(V_1^2 - V_2^2)/(550t)$

$HP_d = 0.06073\ (W_1/t)$

Where:

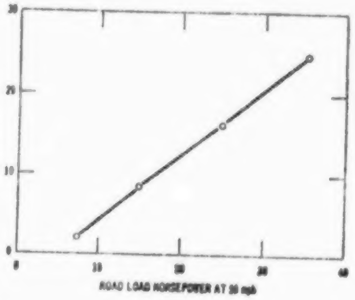
W_1 = Equivalent inertia in lb.

V_1 = Initial velocity in ft./sec. (55 m.p.h. = 80.67ft./sec.).

V_2 = Final velocity in ft./sec. (45 m.p.h. = 66 ft./sec.).

t = Elapsed time for rolls to coast from 55 m.p.h. to 45 m.p.h.

12. Plot indicated road load horsepower at 50 m.p.h. versus road load horsepower at 50 m.p.h.



EXAMPLE: Dynamometer calibration curve
(Ser. No. [illegible])

13. The road load horsepower reported in § 85.073–15 is obtained by entering the plot at the indicated road load horsepower determined in § 85.073–15(c)(1)(ii).
14. Once the road load horsepower at 50 m.p.h. is known for a vehicle, it may be tested on other dynamometers using a similar calibration.

APPENDIX III

CONSTANT VOLUME SAMPLER FLOW CALIBRATION

The following procedure is used in Federal laboratories to calibrate the gas flow of constant volume samplers which use positive displacement pumps. First, the gas flow as a function of the pressure increase across the pump is determined. Second, the whole system, including the instruments, is checked to determine if it accounts for an amount of pure propane or carbon monoxide (caution—carbon monoxide is extremely toxic) introduced into the system.

The following steps are followed to determine the gas flow as a function of the pressure increase across the pump in cubic feet per pump revolution.

1. The pump inlet pressure depression during a typical test is determined.

2. A variable flow restrictor, such as a slide valve, is attached to the CVS at a point upstream of the positive displacement pump. The dilution air filter system may or may not be in use during calibration, depending on the particular CVS design.

3. A flow measuring device (laminar flow element) is attached ahead of the flow restrictor.

4. The CVS is operated at several different pump inlet pressure settings (controlled by the flow restrictor) and the measurements as specified in § 85.073-22 (h), (j), (l), (m), the time per test, and the measurements related to the flow device are recorded. The data points are equally spaced around the normal operating condition.

5. The gas flow, Q, at each test point is calculated in standard cubic feet per minute from the flow device data.

6. The gas flow (at pump inlet pressure and temperature) is calculated in cubic feet per revolution from the following:

$$V_o = \frac{Q}{n} \times \frac{T_p}{528} \times \frac{760}{P_p}$$

Where:

Q = Gas flow in standard cubic feet per minute.

n = Pump speed in revolution per minute.

See § 85.073-26 for remainder of definitions.

7. V_o is plotted versus the square root of the pressure increase across the pump, ΔP, and a linear fit is performed.

The following procedure is followed to check the CVS calibration using a known quantity of injected gas. It assumes a reliable analyzer calibration.

1. A small cylinder is charged with pure propane or carbon monoxide gas (caution—carbon monoxide is extremely toxic).

2. The cylinder is weighed to the nearest 0.01 gram.

3. The CVS is operated in the normal manner and a quantity of pure propane or carbon monoxide is released into the system.

4. The calculations of § 85.073-26 are performed in the normal way except the density of propane (17.30 grams/cu. ft./carbon atom) is used in place of the density of exhaust hydrocarbons.

5. The CVS measured mass is compared to the gravimetric measured mass.

6. The reason for any discrepancy is found and corrected.

APPENDIX IV

DURABILITY DRIVING SCHEDULE

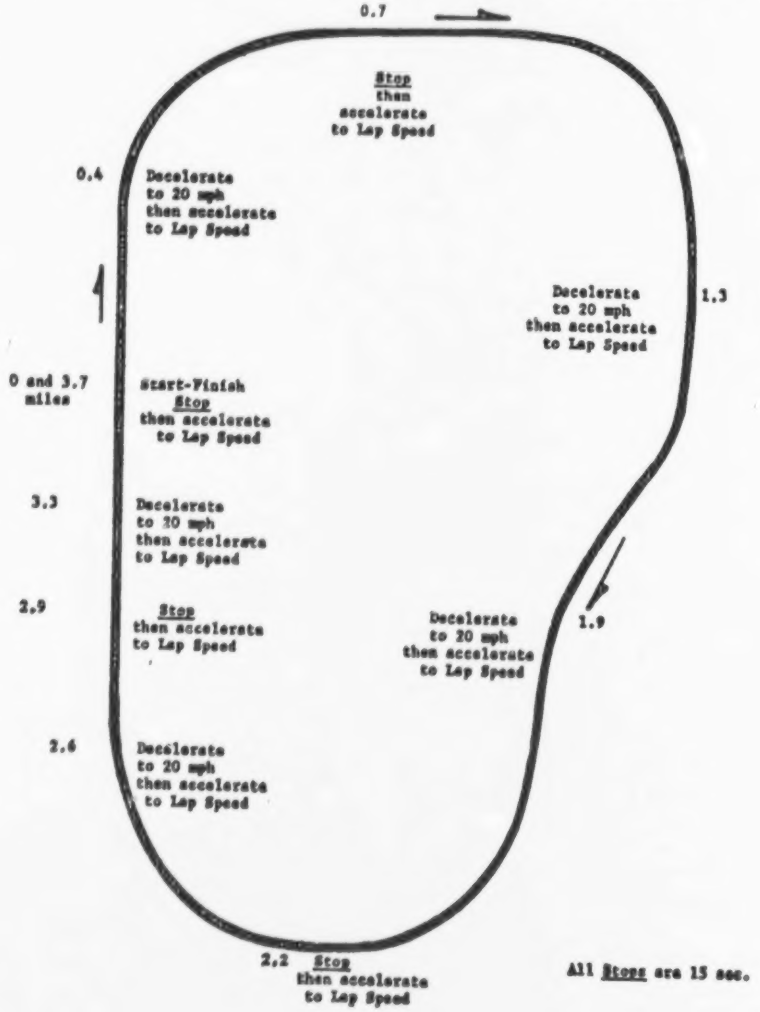
The schedule consists basically of 11 laps of 3.7 mile course. The basic vehicle speed for each lap is listed below:

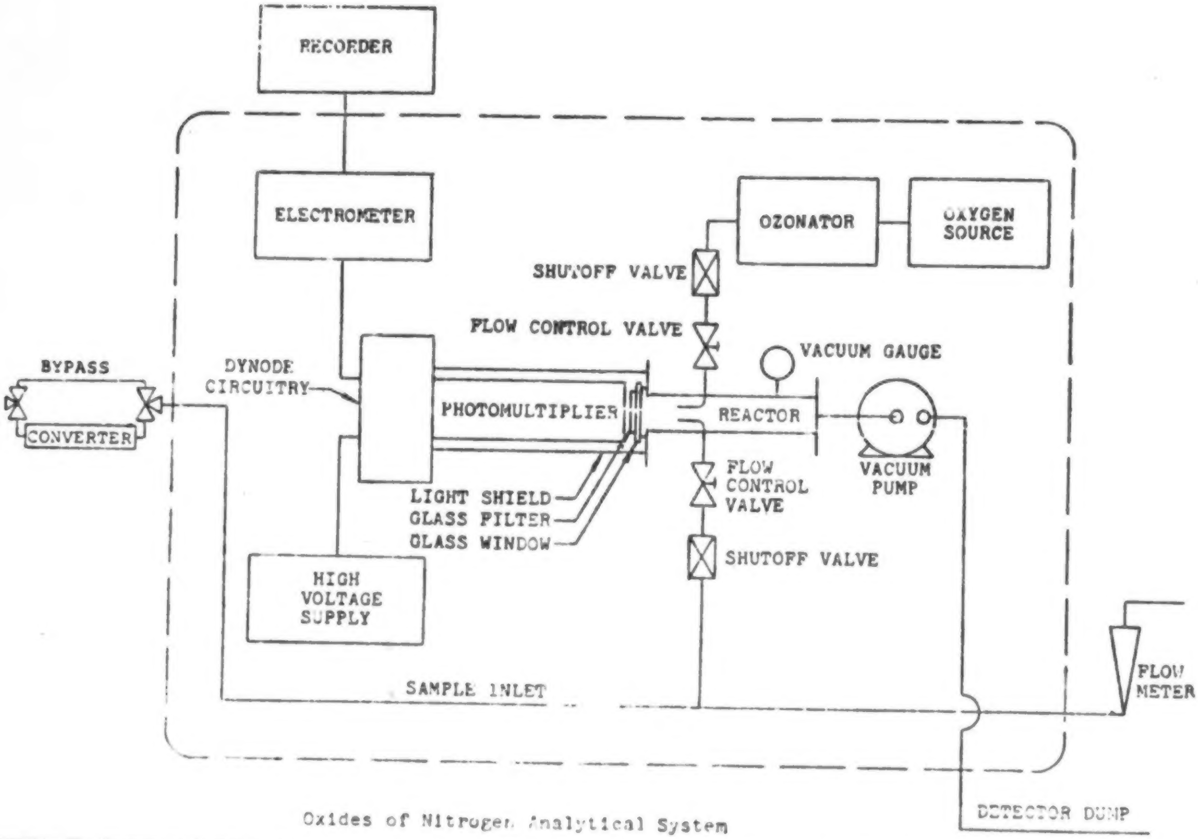
Lap	*Speed-m.p.h.*
1	40
2	30
3	40
4	40
5	35
6	30
7	35
8	45
9	35
10	55
11	70

During each of the first nine laps there are 4 stops with 15 second idle. Normal accelerations and decelerations are used. In addition, there are 5 light decelerations each lap from the base speed to 20 m.p.h. followed by light accelerations to the base speed.

The 10th lap is run at a constant speed of 55 m.p.h.

The 11th lap is begun with a wide open throttle acceleration from stop to 70 m.p.h. A normal deceleration to idle followed by a second wide open throttle acceleration occurs at the midpoint of the lap.


0.7
Stop then accelerate to Lap Speed
0.4
Decelerate to 20 mph then accelerate to Lap Speed
Decelerate to 20 mph then accelerate to Lap Speed
1.3
0 and 3.7 miles
Start-Finish Stop then accelerate to Lap Speed
3.3
Decelerate to 20 mph then accelerate to Lap Speed
2.9
Stop then accelerate to Lap Speed
Decelerate to 20 mph then accelerate to Lap Speed
1.9
2.6
Decelerate to 20 mph then accelerate to Lap Speed
2.2
Stop then accelerate to Lap Speed
All Stops are 15 sec.



Oxides of Nitrogen Analytical System

APPENDIX V—OXIDES OF NITROGEN ANALYTICAL SYSTEM

The chemiluminescence method utilizes the principle that nitric oxide (NO) reacts with ozone (O_3) to give nitrogen dioxide (NO_2) and oxygen (O_2). Approximately 10 percent of the NO_2 is electronically excited. The transition of excited NO_2 to the ground state yields a detectable light emission (590-630 nanometer region) at low pressures. The intensity of this emission is proportional to the mass flow rate of NO into the reactor. The light emission can be measured utilizing a photomultiplier tube and associated electronics.

The method also utilizes the principle that the thermal decomposition of NO_2 ($2NO_2 \rightarrow 2NO + O_2$) is complete at about 600° C. The rate constant for the dissociation of NO_2 at 600° C. is approximately 10^8 (liters/mole-second). A 6-foot length of one-eighth inch outside diameter, 0.028 wall thickness, flawless stainless steel tubing resistance heated using a low voltage, high current power supply to a temperature of 650° C. (1200° F.) provides sufficient residence time at a sample flow rate of 700 cc. per minute (1.5 c.f.h.) for essentially complete conversion of nitrogen dioxide to nitric oxide. Other converter designs may be used if shown to yield essentially 100 percent conversion of NO_2 to NO.

The method permits continuous monitoring of NO_x concentrations over a wide range. Response time (2 to 4 seconds is typical) is primarily dependent on the mechanical pumping rate at the operating pressure of the reactor. The operating pressure of the reactor is generally less than 5 torr.

The following figure is a flow schematic illustrating one configuration of the major components required for the oxides of nitrogen analytical system.

APPENDIX VI

VEHICLE AND ENGINE COMPONENTS

A. Gasoline Fueled Light Duty Vehicles and Heavy Duty Engines

I. Basic Mechanical Components—Engine:
  Intake and exhaust valves.
  Drive belts.
  3. Manifold and cylinder head bolts.
  4. Engine oil and filter.
  5. Engine coolant.
  6. Cooling system hoses and connections.
  7. Vacuum fittings, hoses and connections.
II. Fuel System
  1. Fuel specification—octane rating, lead content.
  2. Carburetor—idle r.p.m., mixture ratio.
  3. Choke mechanism.
  4. Fuel system filter and fuel system lines and connections.
  5. Choke plate and linkage.
III. Ignition Components
  1. Ignition timing and advance systems.
  2. Distributer breaker points and condenser.
  3. Spark plugs.
  4. Ignition wiring.
  5. Operating parts of distributor.
IV. Crankcase Ventilation System:
  1. PCV valve.
  2. Ventilation hoses.
  3. Oil filler breather cap.
  4. Manifold inlet (carburetor spacer, etc.).
V. External Exhaust Emission Control System:
  1. Secondary air injection system hoses.
  2. Air system manifolds.
  3. Control valves and air pump.
  4. Manifold reactors.
  5. Catalytic mufflers.
  6. Exhaust recirculation.
  7. Water injection.
VI. Evaporative Emission Control System:
  1. Engine compartment hose connections.
  2. Carbon storage media.
  3. Fuel tank pressure-relief valve operation.
  4. Fuel vapor control valves.
VII. Air Inlet Components
  1. Carburetor air cleaner filter.
  2. Hot air control valve.

B. Heavy Duty Diesel Engines

I. Engine Mechanical Components.
  1. Valve train.
  2. Cooling system.
    a. Coolant.
    b. Thermostat.
    c. Filter.
  3. Lubrication.
    a. Oil Filter.
    b. Lubricant.
II. Fuel System:
  1. Fuel type.
  2. Fuel pump.
  3. Fuel filters.
  4. Injectors.
  5. Governor.
III. Air Inlet Components:
  1. Air cleaner.
  2. Inlet ducting.
IV. External Exhaust Emission Control System:
  1. Rack limiting devices (aneroid, throttle delay, etc.).
  2. Manifold reactor.
  3. Catalytic mufflers.
  4. Exhaust recirculation.
  5. Water injection.

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